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ABSTRACT

Student as well as author concern about drug usage prompted initiation of a research project on the extent and patterns of college student drug use. This report represents the first phase of that project, and deals with the demographic and psychological characteristics of drug users, patterns of drug usage, attitudes toward drug issues, perceived effects of usage, and changes in usage over time. As a result of survey responses by 3,010 students at Carnegie-Mellon University (1968), 6 types of users were identified and described: straight students (n=189); drinkers (n=424); heavy up (n=112) and down (n=98) users; marihuana tasters (n=98) and users (n=134). While drug use was clearly not a universal happening among those surveyed, there were strong and consistent relationships between characteristics of users and the nature and amount of their drug use. Personality data suggests that some people possess a predisposition to drug use. The authors urge society to examine its role in contributing to the creation of problems with which students sometimes cope by using drugs. Appended are copies of survey materials. (Author/CJ)

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The Social Psychology and Epidemiology of Student Drug Usage: Report on Phase One

Joel W. Goldstein, James H. Korn,
Walter H. Abel and Robert M. Morgan

Report No. 70-18

The Social Psychology and Epidemiology of Student Drug Usage:

A Report of the Carnegie-Mellon University Drug Use Research Project

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June, 1970

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Preface

Concern about drug usage had grown to a point in 1967 where students at Carnegie-Mellon University approached members of the present research team and asked them to gather reliable information about the phenomenon. These requests were matched by desires among the authors to learn more about students who use drugs. Plans for an initial brief survey quickly mushroomed, and Joel W. Goldstein was selected as principal investigator for a research project to sketch out the dimensions of the situation on the C-MU campus. The research was begun under a grant from the Small Grants Program of the National Institute of Mental Health entitled, "Extent and Patterns of College Student Drug Use" (MH-15805). However, the project quickly exhausted the funds awarded and we turned to the Maurice Falk Medical Fund of Pittsburgh for additional support. With the extensive cooperation of the Fund's President, Mr. Philip Hallen,the additional funds necessary for the completion of the research reported here were received.

The research was also facilitated by communication with other research workers. The Falk Fund support also covered the expenses of arranging and conducting a Problem Discussion Session at the 1969 Annual Meeting of The American Psychological Association. This session, "Usage of Psychoactive Drugs: Needed Directions for Research and Action," brought together psychologists and others doing research on drug usage for a lively discussion of vexing issues involved in studying this behavior.

The present report represents the first phase of an on-going project on the nature and meaning of student drug usage. As such, it deals with what might be referred to as the "morphology of student drug use": the demographic and psychological characteristics of various types of drug users, patterns of drug usage behavior, attitudes toward drugs and drug-related issues, the perceived effects of usage, changes in usage over time. The data collected permit much analysis beyond what is presented here. Additional analyses are contemplated to further our understanding of such important phenomena as the process of becoming a user and terminating usage, the role of usage in the life of the user, and the inter-relationships between usage of various drugs.

This report does not integrate our findings with those of other investigators (although we have tried to indicate the existence of relevant research by others in many areas); this must await the next phase of our project. Clearly there is much to be learned from comparisons between findings, and from testing the hypotheses of other investigators.

The data presented here should also be of use to persons charged with formulating and implementing policy related to drug usage by students. Unfortunately, action often must be taken in the absence of sound empirical information and an understanding of the meaning of drug usage which such information facilitates. Drug education, protective, and rehabilitative programs should be more successful in developing respect for drugs if they are based upon a careful and complete understanding of the drug user (Goldstein, 1970).

A research project of this magnitude requires the cooperation and assistance of a great many people. Officers of our two funding agencies, especially Dr. Robert C. Petersen of NIMH and Mr. Philip Hallen of the Falk Fund were cooperative and encouraging. The students of Carnegie-Mellon University are owed the major acknowledgement. They responded in impressive numbers to a long, complex questionnaire which sought highly personal information. They have invested their trust in us and we have tried to produce research worthy of that trust.

The research staff includes at various phases of the project a number of graduate students from the Department of Psychology at Carnegie-Mellon. James V. Hardt, Josafine Jayme, Henry Bernstein and Thomas Burgess, II have contributed to the project to date. Sally Pearne, an instructor in Psychology and a counselor in the Counseling Center, was a member of the research staff and contributed a report analyzing the multitude of notes which students wrote on or sent with their questionnaires (Pearne, 1969). Suzanne Goldenberg helped us design the research instruments, and Karen Norbut did prodigious amounts of work in the data analysis phase of the project. The major share of the typing and reproduction of this report was efficiently and carefully done by Lois Iannacchione.

We owe our thanks to all of these people whose efforts have made possible completion of the research which we have completed to date.

Pittsburgh, Pennsylvania

June, 1970

Joel W. Goldstein
James H. Korn
Walter H. Abel
Robert M. Morgan

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The Social Psychology and Epidemiology of
Student Drug Usage:
Report on Phase One

Joel W. Goldstein, James H. Korn, Walter H. Abel and Robert M. Morgan
Carnegie-Mellon University

Introduction

Public concern and alarm about psychoactive drug usage among youth has been growing steadily since 1965 (Berg, 1967; Newsweek, 1967; Goldstein, 1966; Young and Hixon, 1966; Senate Judiciary Committee, 1966). Clearly many people who had never used drugs before were now doing so and this usage was causing considerable apprehension in the larger society. While pharmacological knowledge about some of these psychoactive agents was uneven and scarce, knowledge of the users—who they are, why they use, and what the effects of this usage are—was almost entirely lacking. In an effort to understand the meaning of campus drug usage the present team began preliminary studies of users in 1967. This led to a formal survey of the entire student body at Carnegie-Mellon University in the fall of 1968.

The focus of those few empirical investigations of youthful drug usage prior to this time was heavily upon the question of the extent of use and this was often overlaid with interpretations of the meaning of the percentages obtained in the absence of substantial other types of data (Dickenson, 1967; Pearlman, 1967; Eells, 1968; Marra, 1970; King, 1969; Imperi, Kleber & Davie, 1968). These studies are valuable in helping one to understand the outlines of this pattern of behavior, but their usefulness is severely limited. When they do seek to understand the meaning of usage they lack in-depth information of the social psychological processes of usage. Recently a few studies have appeared which do go considerably beyond the focus on extent. Most notable of these is the work of Blum and associates (1969). Other studies will be cited in the main body of this report as they become relevant to the particular issue being discussed.

The focus of the present investigation is on three areas: the extent of use, the characteristics of users, and the motivations for and patterns of use. Thus this report will discuss who uses what drugs, for what presumed reasons, under what circumstances, with what attitudes and beliefs, and with what perceived effects. To simplify the presentation of results they will be organized around certain user types: the total abstainer, the heavy alcohol user, the user of up (stimulating and hallucinogenic) drugs, the user of down drugs (sedatives, tranquilizers and narcotics), and the marijuana user. In addition comments on the general meaning of student drug use will be made.

Procedure

Carnegie-Mellon University is located in Pittsburgh, Pennsylvania, and was formerly named Carnegie Institute of Technology. Founded in 1900 as a technical school it gained fame as a center of learning in engineering, science and the fine arts. Recently programs have been added with the following colleges in existence when our data was collected: Engineering and Science, Fine Arts, Humanities and Social Sciences, Margaret Morrison Carnegie College (for women), and the Graduate School of Industrial Administration. The university is noted for taking students of superior academic standing and for emphasizing professional training along with a liberal college education. Students in some departments of the college of fine arts are selected on the basis of talent auditions. Some 1/3 of the students are from immediate areas of Pennsylvania, Ohio and West Virginia. Undergraduate students who live at home with their parents comprize 20% of all undergraduates and another 30% lives off campus in private apartments. A study of the student body revealed that some colleges have rather stable stereotyped images: Engineering and Science, Fine Arts, and Margaret Morrison (Kirk, 1965).

An attempt was made to survey 100% of the full-time student body. This procedure was followed rather than a sampling one in order to aid in the protection of the anonymity of respondents by making it more difficult to identify them through their personal characteristics. This procedure also eliminated the necessity of making laborious a priori specifications of sampling categories and it reduces the possibility that we will be restricted in our ability to test hypotheses due to sampling oversights. For example, the amount of heroin use was thought to be important but very limited. Conventional sampling techniques might have missed detecting the small amount that exists. The additional costs created in conducting a total survey are small because of the use of computers in the data analysis.

The survey methodology was based on the experience of Eells (1968) who pointed out the value of obtaining student support for the research and of the desirability of including a separate name card with each questionnaire which, when returned separately from the questionnaire, allows the identification and follow-up of nonrespondents. A questionnaire was developed based in part on those in use at the Institute for the Study of Human Problems in the Psychopharmacology Project of Stanford University and at the New Jersey Bureau of Research in Neurology and Psychiatry. This was pretested in several editions by both users and nonusers. Finally, meetings were held with a variety of students to inform them of the purposes and procedures of the research and to ask their cooperation in obtaining student support. Similar explanations were given to the university administration.

The actual research questionnaire (Appendix A) consists of two pages of demographic and background information and a matrix asking students to answer 13 possible questions concerning 17 possible substances. This technique allowed us to gather a great deal of information in a small space. Finally there was a page of opinion questions and a page asking about personal experience with the substances. Each questionnaire can contain as many as 326 discreet pieces of information. A cover letter, a return envelope and a "Directions" reply card were included with the packet (Appendix A).

The freshman class and transfer students anonymously filled out the questionnaire as part of the new student orientation and testing program. The freshmen also completed the California Psychological Inventory and the Allport, Vernon, Lindzey, Study of Values. A total of 813 questionnaires were obtained of which 792 were from freshmen and 21 were from transfer students or CMU students who were returning after having dropped out. The upperclass and graduate students received their questionnaires through campus or U.S. mail between November 13 and 16th, 1968. This produced 1918 questionnaires by December 1st (here after referred to as the "first wave" respondents). Another 277 students responded after December 1 (hereafter called "second wave" respondents). Comparing drug usage between waves was a method suggested by Eells (1968) for estimating the nature of the usage of the non-respondents. These comparisons will be presented in Table 6. On December 11th a follow-up letter (Appendix A) was sent to the nonrespondents. Also in the interim an explanatory article (an elaboration of material in the follow up letter) was placed in the school newspaper, ads requesting that students return their questionnaires were also placed in the newspaper and announcements were made over the campus radio station. These materials attempted to deal with concerns which were reported to us informally as being the basis for reluctance to respond. Several types of reluctance were reported. Perhaps the major kind was simple laziness, followed by a belief that one need not respond if he does not use drugs. User reluctance was based somewhat on fear of personal identification (one student felt that we had coded the questionnaire with infra-red markings), but more on the belief that if the amount of use were precisely known, police action would be precipitated.

Attempts to deal with these concerns are clearly shown in the follow-up letter and newspaper story. In addition the investigators held informal talks with students felt to be central among the hold-outs of this type. There is some indication that an attempt to organize a systematic campaign for non-cooperation was abandoned due to these efforts. Throughout the research, from questionnaire construction, through mailing, coding, key punching and data analysis we have hired those who were likely to be among the drug users freely. It was our belief that this would help to communicate our honesty to students who are suspicious of drug research.

Since the freshmen were responding on one of their first days on campus they essentially were reporting their high school experience. In order to have longitudinal data on the effect of time in college, in addition to the cross-sectional data available by means of making comparisons among the upperclassmen, we resurveyed the freshmen in early May, 1969. A shortened form of the questionnaire and new cover letters were used (Appendix B) because the essential focus of the follow-up was on changes in patterns of use during the freshman year. In addition we allowed a systematic opportunity for fuller communication by providing two optional open-ended questions. This was done because of the useful material contained in the notes volunteered along with the non-freshman survey. These notes are discussed more fully in the Results section. Questionnaires were sent to about 800 freshmen in May and 507 replies were received by the end of the school year. One follow-up letter was sent to the non-respondents (Appendix B).

Finally, during the early spring of 1969 (but before the freshman follow-up study), a very short questionnaire was sent to a 5% sample of the non-freshmen who did not respond to the questionnaire. This was done in an effort to discover why people had not responded and to learn how the hold-outs differed from the responders in terms of drug usage. These data are reported in the section below, "Are the Respondents Representative?"

Rate of Return

Table 1 gives the university Registrar's enrollment figures for freshman, other undergraduates, and graduate students, the number of questionnaires we obtained, and the per cent response for the three groups. When a questionnaire packet was returned by either the campus or U.S. post office every effort was made to obtain a correct address for the intended recipient. For some 43 undergraduate and 624 graduate students no adequate residential address could be obtained. In the instance of the graduate students the packets were sent by campus mail to their departments of study. This may account for a portion of the low response rate among graduate students. It should be noted that the majority of all students without addresses were enrolled in the College of Fine Arts or were foreign graduate students in Engineering and Science.

Table 1

Rate of Response by Class

Class	Number Enrolled	Number with Addresses*	Number of Returns	% Returned of Those with Addresses
Freshmen	837	837	802	94.6%
Other Undergrads	2341	2298	1472	64.0%
Grad. Students	1369	1318	728	55.2%
Class Not Given	----	----	8	-- -
Total	4547	4453	3010	67.6%

* Undergraduates not so categorized had no residential address; some 624 graduate students had no residential address listed with the Registrar, however all but 51 unreachable cases are included here because graduate students can usually be reached by means of campus mail address to their department of study. Freshmen responded during orientation and no mails were used for them.

The data in Table 1 indicate an overall return rate of 67.6%. We have some indication that our actual percentage was somewhat higher because graduate students away from campus but working on dissertations are included in the figures of full-time enrollees and we made no provision for paying U.S. postage of students who could not return their materials through the campus mail. Some students did pay U.S. postage on their own.

The rate of return varies widely in questionnaire studies of drug usage depending upon the population under study and the methodology used. Pearlman (1967) obtained a 55% response from graduating Brooklyn College seniors with no follow-up. Imperi, Kleber and Davie (1968) obtained a response rate of 80% from a sample of Yale undergraduates and of 66% from a sample of Wesleyan undergraduates. King (1969) obtained a 79% response from graduating Dartmouth seniors. Marra, (1968) obtained a 70% response rate from students at the State University of New York at Buffalo who received their questionnaire when they appeared to obtain their university identification card. Eells (1968), after whom we modeled our research methodology, obtained an impressive 90% return from the student body at the California Institute of Technology. Thus our response rate falls in the midst of those obtained by others, however it seems especially impressive when one notes that the other studies have involved a very brief questionnaire while the present research asked for responses to an elaborate questionnaire which took many respondents at least 30 minutes to complete. Also our population was larger than in the previous studies. Given this intensive probe requested only by mailed exhortations we feel that the rate of response is more than satisfactory. Of course, the rate of response is merely incidential to the nature of bias in the respondents and it is to this question to which we now turn.

Are The Respondents Representative?

Data from the freshman class are almost complete and thus they come nearest to being an accurate indication of the responses of that class. The matter of bias on the questionnaires themselves will be discussed below. What about that 32.4% of the students who did not respond? Table 2 gives their number and rate of response by class, college and sex. These data indicate that the largest numbers of nonrespondents were male juniors, seniors, and especially graduate students in engineering and science fields (Carnegie Institute of Technology), and to a lesser extent, students in fine arts, especially males. In terms of living

Table 2

Questionnaire Response Rate by College, Class and Sex

Class	Sex	College				
		C.I.T.	F.A.	MMCC	AMS or GSIA	H&SS
Freshmen	Both	$\frac{445}{481}=92.5\%$	$\frac{199}{254}=78.3\%$	$\frac{30}{42}=71.4\%$	$\frac{15}{16}=93.7\%$	$\frac{84}{113}=68.3\%$
Sophomores	Male	$\frac{264}{378}=69.8\%$	$\frac{51}{120}=42.5\%$	$\frac{3}{5}=60\%$	$\frac{25}{42}=59.5\%$	$\frac{13}{14}=92.8\%$
	Female	$\frac{45}{55}=81.8\%$	$\frac{56}{91}=61.5\%$	$\frac{29}{43}=67.4\%$	--------	$\frac{76}{84}=83.1\%$
Juniors	Male	$\frac{185}{275}=67.3\%$	$\frac{26}{87}=29.9\%$	--------	$\frac{27}{39}=69.2\%$	$\frac{20}{36}=54.1\%$
	Female	$\frac{34}{44}=77.3\%$	$\frac{30}{80}=47.5\%$	$\frac{28}{42}=66.7\%$	$\frac{1}{1}=100\%$	$\frac{62}{82}=75.6\%$
Seniors	Male	$\frac{178}{306}=58.6\%$	$\frac{64}{122}=57.1\%$	--------	$\frac{26}{45}=57.8\%$	$\frac{36}{47}=76.6\%$
	Female	$\frac{29}{39}=74.4\%$	$\frac{45}{67}=67.1\%$	$\frac{28}{45}=40\%$	--------	$\frac{66}{88}=75\%$
Graduates	Male	$\frac{480}{913}=52.6\%$	$\frac{29}{62}=46.8\%$		$\frac{159}{226}=70.4\%$*	
	Female	$\frac{22}{35}=62.9\%$	$\frac{23}{31}=74.2\%$		$\frac{47}{74}=46.1\%$*	

* Data for GSIA, MMCC and H&SS are combined here.

Note: Totals of respondents add to 14 persons less than the total number of questionnaires received because 14 persons did not indicate at least one of the three classificatory variables.

C.I.T. = Carnegie Institute of Technology (engineering and science)

F. A. = Fine Arts

MMCC = Margaret Morrison Carnegie College (business, home economics)

AMS = Administration and Management Science (undergraduate only)

GSIA = Graduate School of Industrial Administration (graduate programs in business, economics, psychology, statistics)

H&SS = Humanities and Social Sciences

arrangements (see Table 3) nonrespondents were disproportionately students living off campus but not with parents or relatives. Foreign students were also disproportionately represented among the nonrespondents. Recall that graduate students were especially likely not to have home addresses listed with the university registrar (Table 1). Thus it is likely that they received a lower proportion of their survey materials. An intensive survey was made of a 5% sample of the nonrespondents. Table 4 indicates the reasons why these students did not respond. If one extrapolates from these data one can conclude that 28% of the nonrespondents were inordinately difficult to reach, having no identifiable addresses or telephone numbers or having left the university. This suggests that our 3010 returned questionnaires represent a 73.1% response from the reachable

Table 3

Housing Location of the Nonrespondents by Class and Sex

Class	Campus Housing		Pittsburgh Off-Campus Housing		No Address and Distant Addresses	
	Males	Females	Males	Females	Males	Females
Sophomores	89	55	103	21	13	0
Juniors	51	30	102	43	12	3
Seniors	69	24	137	45	10	5
Foreign Undergrads.	0	1	14	1	0	0
Total Undergraduates	209	110	356	110	35	8
U.S. Graduate Students	101	11	396	54	46	5
Foreign Graduate Students	25	0	70	2	0	0
Total Graduates	126	11	466	56	46	5

Table 4

Reasons for Not Responding to Original Questionnaire of a 5% Random Sample of Nonrespondents

Students who could be contacted and who responded to intensive probe:	N	
Lazy or too busy	7	
Lost survey materials	6	
Felt it unimportant or that own experience was unimportant	8	
Other miscellaneous reasons	5	
Claimed questionnaire was returned	9	
Did not answer this question	3	
Total Number students who could be contacted		38
Students who could not be contacted by mail or telephone		13
Students who had left the university		5
Students saying that they were willing to respond to intensive probe but who never did		12
Students claiming original questionnaire was returned and who decided to ignore intensive probe		3
Students who refused to respond to probe		4
Total N in the Intensive Sample		75

students. Clearly the number of principled refusals was quite small, and laziness, carelessness, or lack of interest accounted for the vast majority of the nonresponsiveness. In the intensive probe a very abbreviated question inquired into extent of drug use. Table 5 gives the extent of use data for those 38 of our 75 sampled students who did return the short probe questionnaire.

Table 5

Extent of Drug Use in Students Responding to Probe of the Nonrespondents to the Original Questionnaire

Pattern of Use	N
No marihuana, no other drugs*	28
"Some" marihuana, no other drugs	6
"Much" marihuana, no other drugs	1
"Much" marihuana, "some" other drugs	1
"Much" marihuana, "much" other drugs	1
No answer to this item	1
Total	38

* "Other Drugs (Hallucinogens, Amphetamines, Barbiturates)"

Thus we see that 73.7% of these persons did not use any drugs at all. The 37 persons who did not return the intensive probe questionnaire were largely males in engineering and science and in fine arts.

In short males, especially graduate students in engineering and science, and males in fine arts were especially likely not to have responded to the questionnaire. Students living off campus also responded less than did students living on campus. In the Results section we will see that graduates in engineering and science are especially likely to be drinkers of alcoholic beverages and that students in fine arts are over-represented among the users of marijuana and of "up" and "down" drugs. In attempting to generalize about the extent of use of these drugs these limitations must be kept in mind.

Another way to estimate how the nonrespondents differ from the respondents is to generalize from comparisons of early (wave one) to later respondents (wave two). As seen in Table 6, the students who returned their questionnaires late

Table 6

Characteristics and Drug Usage of Early and Later Responders

Variable	% of Early Responders N = 1918	% of Later Responders N = 278
Male	71.4	77.7
Female	28.4	21.9
N.R.	.2	.4
Freshmen	.6	1.4
Sophomores	25.4	18.7
Juniors	20.5	21.9
Seniors	21.3	19.1
Graduate students	32.0	37.8
N.R.	.2	1.1
Campus Housing	43.5	29.1
Live with parents	19.8	28.1
Other housing	36.3	41.7
N.R.	.4	1.1
Amphetamine Use		
Never	82.8	76.5
Once	3.1	1.4
2 - 10 times	5.4	8.7
10 - 50 times	3.0	4.0
Over 50 times	1.5	2.2
N.R.	4.2	7.2
Beer Use		
Never	8.9	7.2
Once	3.3	3.6
2 - 10 times	15.2	15.5
10 - 50 times	19.6	17.7
Over 50 times	51.6	53.8
N.R.	1.4	2.2
Hard Liquor		
Never	8.9	10.8
Once	2.2	1.1
2 - 10 times	17.0	17.3
10 - 50 times	27.7	27.1
Over 50 times	42.7	40.8
N.R.	1.5	2.9

Table 6 (continued)

Variable	% of Early Responders N = 1918	% of Later Responders N = 278
Marihuana Use		
Never	70.9	65.7
Once	5.0	5.1
2 - 10 times	9.0	9.4
10 - 50 times	6.2	6.1
Over 50 times	5.3	7.2
N.R.	3.6	6.5
Tobacco Use		
Never	29.5	26.4
Once	4.7	2.2
2 - 10 times	14.3	12.3
10 - 50 times	7.6	12.3
Over 50 times	40.3	42.6
N.R.	3.6	4.2

were more likely to be male, graduate students, and to live off campus either with their parents or in other non-campus housing, and were less likely to be sophomores, than those who responded promptly. In terms of their drug usage the later respondents were less likely to have never used amphetamines and marijuana but were not strikingly higher in extensive use of any of the five representative substances listed. If one assumes that the later respondents are somewhere between the early respondents and the nonrespondents in their drug use we would infer that the nonrespondents had higher usage, especially of amphetamines, marihuana and tobacco, than the respondents, but not strikingly higher usage.

How Accurate are the Obtained Questionnaire Responses?

Independent of the matter of who returned the questionnaire is the issue of the accuracy of the responses made on those questionnaires which were returned. It will be noted that the cover letter (and the letter accompanying the freshman follow-up) provided the opportunity for students who did not wish to complete their questionnaire to return it blank and to return the directions card so as not to be bothered by follow-ups. Eells (1968) reported that this opportunity was appreciated by his population of interest, and that only a small number decided to take advantage of it (11 of 1290 students). We also found that only a small number chose this opportunity: 14 blank questionnaires were received. Many students did, however, leave parts of the questionnaire blank. The follow-up letter suggested that doing this to protect one's anonymity was preferable to not returning anything or to returning a blank questionnaire.

The majority of blanks on the returned questionnaire were not in personal identification data (pages one and two of the questionnaire), but were in the matrix (page 3) or on the question asking about personal experience with the substances (page 5). Since the matrix was complex in layout a comparative analysis was made on blank responses to two important questions for a number of important substances. Table 7 presents the number of persons and the percent of persons who left the amount of use item (matrix question in column one) blank, for seven

Table 7

Number and Per Cent of Respondents Leaving 'Amount of Use' and 'Future Intention to Use' Questions Blank for Seven Representative Substances

Substance	Extent of Use*		Future Intention to Use**	
	N	% of Respondents	N	% of Respondents
Tobacco	76	2.5%	464	15.7%
Beer	40	1.4	224	7.4
Hard Liquor	48	1.6	249	8.4
LSD	140	4.7	1146	40.0
Marihuana	101	3.4	905	30.0
No Doze	109	3.6	826	27.4
Tranquilizers	145	4.9	1050	34.7

* Matrix column one
** Matrix column four

representative substances. Since the freshmen data and that of all other respondents are similar they are combined here. Two aspects of these data are striking: the number of blanks on the 'future intention' item are eight or nine times the number for the 'amount of use' item. This is probably due to two factors, the reluctance of respondents to complete all of the complex questionnaire, and much more likely, the simple failure to recognize that one is to complete this item even if one has never used the substance in question. (Recall that this item is column 4 in the matrix; columns 2 and 3 concern only persons who have used the drug).

The second notable trend in the data is that the number of blanks varies greatly according to the substance, beer having only about one fifth as many as LSD for the intent question. This trend is related to the first one. That is, the reporting of some usage in column one increases the likelihood that one will respond to column 4 (as one has already to columns two and three). The possibility of a genuine reluctance or uncertainty rather than mere oversight is also indicated by the differences among the substances. The more potent and illegal substances are likely to be more difficult to make personal predictions about than the common and legal ones.

Only one questionnaire was blatently hostile; it came stuck together with glue with a garden weed stuck inside. Two others showed clear instances of fake responses and were not included in the data analysis. Thirty-seven students spontaneously wrote comments about the questionnaire on their forms (despite being asked not to write on it other than to reply to the questions) or in separate notes sent to the investigators. Eleven of these were generally positive and supportive, 17 were negative or even hostile and eight contained constructive criticisms for improving our questionnaire. Thus the obtained questionnaires and notes showed very little overt rebellion, especially considering the nature of the survey.

An undergraduate, Madeline Frink, made an independent study of 53 students who use drugs in order to assess their attitudes toward the survey (Frink, 1969). She found that 75% of her respondents had returned the questionnaire, 6% said they had merely forgotten to respond and 19% deliberately did not respond to our survey. Only one of her respondents indicated that he had deliberately falsified his questionnaire. He had falsified the opinion questions, especially the item asking one to estimate the extent of marijuana use on campus. This study was done in the Spring of 1969. In assessing changes in actual usage since the original survey Miss Frink found that 56% of her sample used drugs in the spring that they had not used the preceeding fall (recall that all her subjects were users of illegal drugs). Some notable findings from her sample concern confusions people had with the original survey: about 10% misinterpreted the word "addictive" (matrix column 13), confusion on the personal experience question (page 5) was greater than with any other question (this wording was used in order to allow comparisons with Eells (1968) from whom the item was adopted), 53% did not consider graduate students in making their estimates of the amount of marijuana use on campus, and 30% felt that asking people to fill out the grid on page 3 was asking too much.

Miss Frink found that her respondents were strongly in favor of drug research --only one was opposed. All said that they intended to read the results when they were available. No one said that they would not like to see more drug research at Carnegie-Mellon. Eighty-one per cent felt that our questionnaire would bring forth useful information. The following data from her study were especially interesting in assessing the attitudes of the college user toward drug research:

How might drug research be conducted?

55%	Questionnaires
50%	Interviews by Psychology Department Faculty
39%	Interviews of drug users by trusted students
66%	Observations of actual drug usage
11%	Other

How should the survey results be used?

42%	In counseling drug users

40%	As evidence for repeal of the drug laws
60%	To educate the establishment with regard to drugs

What important questions about drugs are yet to be answered?

83%	Changes in values as a result of drug usage
74%	Reasons for drug use
64%	What kinds of people use drugs
42%	Settings under which people use drugs
64%	Types of experiences students have with different drugs
51%	Frequency of bad experiences
43%	Chemical composition of "street" drugs
74%	Drug culture--the general needs of drug users
11%	Other
32%	All of the items listed

In her conclusion Miss Frink summarizes her study as follows:

> "Students did feel that the Psych. Dept. Survey was relevant to drug use at CMU. Most of my subjects returned their Psych. Dept. Questionnaires and only a few of those who did not said that it was because they were against drug research. Students feel that the Psych. Dept. Survey will bring out worthwhile information. Few students are reluctant to participate in drug research, although many do not want to spend the time. The percentage of students distorting responses on their Psych. Dept. questionnaire was probably not as great as had been feared (by Miss Frink). A significant number of students are more liberal toward drugs now (Spring) than they were in November. There are some questions on the original Questionnaire which might be subject to different interpretations, particularly the questions Addiction, Disapproval (by one's friends), and % of CMU students having used marijuana at least once. CMU students are strongly in favor of drug research."

In interpreting these conclusions it should be noted that she obtained replies on 53 of the 90 questionnaires which she distributed (4 questionnaires from non-users which were returned were discarded). Her experience in response rate and the reasons she obtained for not responding to the original questionnaire are quite compatible with our own data from our follow-up probe of 5% of the nonrespondents.

Results

The presentation of results will be organized around a variety of user types: the straight student or abstainer, the alcohol user, heavy users of stimulant and depressant drugs, and marihuana users. Since marihuana is a highly controversial substance and since it is the most widely used of the illegal drugs, it will be discussed in more detail than the other substances. All substances other than beer, liquor, No Doze and tobacco will sometimes be referred to for the sake of brevity as "illegal drugs" in this report. All drugs inquired about have some legal controls over them, but the exceptions listed are widely available without medical prescription to persons of specified ages. Following the discussion of types of users, the report will deal with selected characteristics of users across drugs, e.g., intended future use of various drugs.

It may be noted from an inspection of our questionnaire that many possible analyses of our data are not presented here. The authors intend a second phase of this investigation which is designed to delineate some of the more subtle relationships in the data. In this report emphasis will be placed upon who uses what substances in what ways for what reasons and with what attitudes.

User Type Definitions

The following definitions of user types are listed in the order in which the results for each type will be presented. The number of students and the per cent of the total sample that met each definition are given in Table 8 which follows this listing.

Straight Student - no use of any of the substances listed on the questionnaire (which included beer, No-Doze and tobacco). In addition, a category of "principled" non-users was defined as students who said they did not intend to use any of the substances in the future.

Drinker - use of beer or liquor more than ten times but no use of any other drug except tobacco and Do-Doze. Since only one freshman met this criterion, all drinkers discussed are upperclassmen or graduate students.

Heavy Up Users - use more than ten times of at least one of the following drugs: amphetamines, hallucinogens, cocaine.

Heavy Down Users - use more than ten times of at least one of the following drugs: barbiturates, tranquilizers, heroin, morphine, opium.

For the up and down categories use of marihuana, beer, liquor, No-Doze and tobacco were considered irrelevant, since heavy users of strong drugs tend to be heavy users of all drugs. Again, very few freshmen met these definitions (18 - up; 15 - down) and so only the results for upperclassmen and graduate students will be presented.

Marihuana Taster - a one-time user who has not used any other illegal drug.

Marihuana user - has used marihuana between two and ten times but has used no other illegal drugs.

An attempt was made to create a marihuana "head" category involving use more than ten times and use of no other illegal drugs more than once, however, there were almost no individuals in our sample who fit this definition. Virtually all heavy marihuana users had used other illegal drugs more than once.

Table 8

Number of Students and Per Cent of Total Freshman and Upperclass Samples Included in Each User Type

User Type	Freshman N	(N=802) %	Upperclassmen & Graduate Students N	(N=2208) %
Straight	114	14.2	75	3.4
Drinker	---	---	424	19.1
Heavy Up	---	---	112	5.1
Heavy Down	---	---	98	4.4
Marihuana Taster	26	3.2	72	3.2
Marihuana User	26	3.2	108	4.9

For ease of comparison of user types, per cent responses of all user types and of the total sample are presented together in Table 9 for demographic variables and in Table 10 for opinion questions. Those tables should be referred to for detailed presentation of the results discussed in the following sections. Some of the data discussed under each user type was taken from the matrix on page three of the questionnaire and are not included in Tables 9 and 10. In those cases, percentages will be given in the text or in smaller tables.

Table 9

Per Cent of Students of Each User Type in the Various Demographic Categories[1]

Code for Column Headings

Fr - all freshmen (N=792) and transfer students (N=21)
UC - all upperclass and graduate students (N=2197)
SS - Straight Students (N=189)
PS - "Principled" Straight Students (N=49)
Dr - drinkers (only non-Freshmen) (N=424)
HU - Heavy Up Users (only non-Freshmen) (N=112)
HD - Heavy Down Users (only non-Freshmen) (N=98)
Fr, MT - Freshmen Marihuana Tasters (N=26)
Fr, MU - Freshmen Marihuana Users (N=26)
UC, MT - Upperclass and graduate Marihuana Tasters (N=72)
UC, MU - Upperclass and graduate Marihuana Users (N=108)

	Fr.	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Sex: Male	68	72	68	78	79	64	55	73	69	71	67
Female	31	28	32	22	21	36	45	27	31	29	33
Year in School:											
Freshman	100	--	60	55	NA[2]	--	--	100	100	--	--
Sophomore	--	25	15	12	NA	31	29	--	--	12	25
Junior	--	21	8	10	NA	18	13	--	--	28	30
Senior	--	21	5	10	NA	24	27	--	--	25	24
1st Yr. Grad.	--	11	4	6	NA	6	13	--	--	11	6
2nd and Later Grad.	--	22	7	6	NA	18	17	--	--	21	14
Marital Status:											
Single	--	79	93	89	73	80	75	96	96	88	92
Married	--	20	7	10	26	16	22	4	4	10	8
Divorced or Seperated	--	1	0	0	0	2	2	0	0	1	0

Table 9 (continued)

	Fr.	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Major Study Area:											
Graduate:											
GSIA & Psych.	--	6	NA	NA	8	4	3	--	--	6	9
Eng. and Sci.	--	19			27	7	17	--	--	17	8
Humanities	--	4			4	5	6	--	--	3	1
Fine Arts	--	2			2	2	2	--	--	6	4
Undergraduate:											
Painting, Design, Graphics, Arch.	--	8			4	19	15	19	27	11	9
Music, Drama	--	4			4	10	9	27	8	6	6
Ind. Admin.	--	3			3	4	1	--	4	3	5
Engineering: Civil, Metalurgical	--	4			6	2	4	--	--	4	4
Engineering: Mech. Elect., Chem.	--	17			17	13	8	23	15	10	13
Chemistry, Math, Physics	--	14			12	5	5	19	35	17	18
Bus. & Soc Studies	--	6			4	6	6	--	--	6	6
Humanities	--	10			7	17	19	12	12	11	13
Grade Point Average:											
Below 1.99	--	7	NA	NA	3	10	6	--	--	3	10
2.00 - 2.49	--	20			17	26	22	--	--	13	22
2.50 - 2.99	--	20			15	16	21	--	--	28	19
3.00 - 4.00	--	21			23	15	16	--	--	21	23
Housing:											
Home	17	21	26	31	24	12	18	12	8	8	9
Dormitory	79	30	64	59	26	18	33	88	92	25	28
Fraternity	0	11	3	4	14	7	8	0	0	17	12
Rented room or apt.	2	37	6	6	35	61	41	0	0	49	51
Religion reared:											
Protestant	42	45	51	53	48	44	44	50	31	44	44
Catholic	28	27	30	31	34	13	24	38	8	22	18
Jewish	20	19	12	8	12	29	23	8	46	21	32

Table 9 (continued)

	Fr.	UC	SS	PS	Dr.	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Other	4	4	2	4	2	7	5	0	0	10	1
None	5	4	4	2	3	7	3	4	15	3	5
Present religious preference:											
Protestant	30	28	46	59	34	12	18	19	15	18	16
Catholic	22	21	26	20	29	6	19	15	8	10	8
Jewish	16	14	11	8	11	14	11	4	38	12	21
Other	7	7	3	4	4	18	10	--	4	12	6
None	25	30	14	6	22	50	41	62	35	46	47
Attendance at religious service:											
Regular	39	27	56	59	34	2	15	27	12	14	10
Infrequent	39	35	29	24	37	36	34	46	50	29	42
Not at all	22	37	14	14	29	62	51	27	38	56	48
Father's education:											
Gram. sch. or less	3	7	5	4	9	4	7	8	4	6	4
Some high school	9	9	10	14	12	4	9	12	4	11	6
High school grad.	21	23	23	29	26	15	18	19	4	25	15
Some college	18	16	17	14	14	23	20	19	19	12	11
College degree	27	25	28	22	23	27	20	27	38	32	42
Post grad. degree	20	17	16	14	14	25	21	15	27	14	21
Mother's education:											
Gram. sch. or less	2	5	4	0	5	3	3	0	0	6	1
Some high school	6	9	6	8	10	7	8	4	0	11	4
High school grad.	40	38	44	47	42	26	31	46	19	39	34
Some college	23	20	23	16	16	31	24	19	31	22	21
College degree	21	21	18	22	20	22	24	19	35	12	30
Post grad. degree	7	6	3	4	4	9	8	12	12	10	8
Family Income:											
Under $5,000	4	7	6	8	8	4	5	4	8	8	2
5 - 10,000	25	26	30	33	26	18	17	15	8	19	16
10 - 15,000	29	28	32	22	27	26	30	35	19	31	30

Table 9 (continued)

	Fr.	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
15 - 25,000	25	20	22	26	21	24	22	27	35	25	22
Over 25,000	14	15	6	8	12	21	22	15	27	15	24
Community where raised:											
Farm/rural	4	5	7	8	5	1	5	0	0	4	4
Small town (under 10,000)	13	12	16	16	12	7	9	4	8	12	8
Avg.-size town (10 - 99,999)	20	19	14	6	24	16	12	31	15	22	14
Suburb of city	39	31	38	47	29	38	32	38	50	28	41
City (100-500,000)	7	8	8	6	10	9	5	12	8	17	10
Large city (above 500,000)	14	21	15	16	18	26	35	12	15	15	21
Participation in extra curricular activities:											
On-Campus:											
None	12	24	19	22	23	22	31	12	4	19	18
Seldom	14	34	22	29	30	34	28	15	31	42	39
Occassional	18	24	25	31	25	31	28	31	19	22	27
Frequent	14	15	14	4	18	10	12	0	15	15	14
Off-Campus:											
None	14	31	13	27	34	33	34	12	8	35	33
Seldom	26	37	12	24	37	26	32	19	27	31	32
Occassional	22	19	14	29	18	19	20	19	31	19	20
Frequent	6	6	2	4	5	15	11	4	4	7	6
Social Frat. or Sorority:											
Yes	--	31	5	6	38	21	28	8	8	32	36
No	--	67	89	89	30	79	70	81	81	68	63
Political Position											
Ext. liberal 1	6	5	2	2	4	12	11	0	12	3	8
2	22	22	8	10	19	30	26	46	62	33	36
3	24	24	21	14	30	18	18	8	12	26	18
4	9	9	16	16	8	3	8	15	0	6	7
5	11	14	16	22	19	6	11	12	0	12	6
6	5	5	8	10	5	2	7	0	0	1	3

Table 9 (continued)

	Fr.	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Ext. conserv. 7	1	1	2	2	1	0	0	0	0	3	1
Can't represent	9	9	12	12	7	20	10	8	8	7	14
No interest in politics	10	9	14	10	6	6	7	12	4	8	6
Mean rating	3.23	3.29	3.93	4.11	3.45	2.53	2.98	2.90	1.90	3.08	2.52

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[1] Per cents are rounded to the nearest whole number. Per cents may not add to 100 due to rounding and blank responses.

[2] NA - not available. Some computer runs were not complete at the time this report was prepared.

Table 10

Per Cent Responses to Opinion Questions
(Code for column headings same as Table 9)

	Fr	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Marihuana creates physiol. need for:											
LSD	4	3	3	4	2	1	4	8	8	4	5
Heroin	24	11	25	18	9	6	10	4	8	6	11
Neither	36	49	23	24	40	79	56	62	73	56	68
Don't know	28	32	41	49	43	12	22	27	12	32	15
Both	5	2	3	4	3	0	2	0	0	0	1
Social influence on M. users to use:											
LSD	25	26	13	18	19	46	36	15	38	29	31
Heroin	17	9	17	18	9	2	4	4	8	8	8
Neither	12	16	5	0	11	35	29	19	42	17	28
Don't know	24	31	42	41	39	10	19	35	8	29	16
Both	18	15	20	22	20	5	7	23	4	14	16
M. use alter values to use:											
LSD	15	16	8	4	10	32	16	15	27	15	20
Heroin	19	8	23	18	6	2	6	8	0	8	6
Neither	14	18	4	2	11	36	32	19	46	29	36
Don't know	30	39	42	47	50	20	26	35	19	32	25
Both	18	16	19	15	20	9	15	23	8	11	12
Relation of M. use to crime:											
Yes	30	17	35	43	18	5	15	20	12	6	3
No	36	46	27	16	34	80	59	52	88	62	81
Don't know	30	33	44	41	45	13	20	28	0	30	14
Pa. state law:											
Too lenient	7	6	16	16	7	1	7	0	4	0	0
About right	39	25	50	59	29	6	12	23	0	1	6
Too severe	50	64	29	20	58	90	74	77	96	94	93

Table 10 (continued)

	Fr	UC	SS	PS	Dr	HU	HD	Fr MT	Fr MU	UC MT	UC MU
Estimate of M. use at C-M U:											
Mean %	NA	NA	22.7	18.2	NA	48.9	47.0	43.0	41.0	42.5	45.0
Median %	NA	NA	20.0	10.0	NA	50.0	50.0	47.5	45.0	50.0	45.0

When a question arises as to whether an observed difference between two percentages represents a significant difference the procedures described in Appendix C can be used to determine whether the difference of interest is likely to have occurred by chance alone. Differences discussed in the text are large enough to have occurred by chance five or fewer times in one hundred.

Straight Students

An interesting group of students in our survey should be that group who has never used any of the drugs about which they were asked. We found 189 individuals who answered "never" to the extent question for all the drugs on the list. They will be referred to by the symbol "S". In addition, a subset of this group also said they did not intend to use any of the drugs. There were 49 of these "principled" straight students (Ps).

Well over half of these straight students were freshmen (S = 60%, P = 55%). After the freshman year the proportion of students in both groups (S & P) drops rapidly and, roughly, linearly, i.e., more sophomores than juniors are non-users, more juniors than seniors, etc. Thus, in comparing the characteristics of nonusers to the rest of the population, the over-representation of freshmen must be kept in mind.

As is generally true of freshmen, not many of the straight students live in fraternity houses or rented apartments. However, a much larger proportion live at home: S = 26%, P = 31% vs. 17% for freshmen and 21% for non-freshmen. Thus it appears that some straight students are more closely tied to the family than drug-using students. They could leave home in order to drink or smoke with friends, but they do not do so.

The straight student is more religious than other students. He attends church much more regularly (S = 56%, P = 59% report "regular" attendance vs. 39% freshmen, 27% other). In addition, he is more likely to have been raised as a Protestant, less likely to have been Jewish, and is much more likely to claim some Protestant group as his present faith than to be either Jewish or nothing. The proportion of Catholics seems to be about the same among nonusers as among other students.

The educational background of the parents of straight students does not differ much from that of other students' parents. There are small, but consistent, differences in the direction of less education for both the fathers and the mothers of straight students. Family income appears to be lower for nonusers (but not for Ps) than for others: in the categories over $15,000, S = 28%, P = 34%, freshmen = 39%, non-freshmen = 35%. There is not much difference in home towns of students in these groups. More Ps (47%) come from the suburbs and fewer Ss and Ps from "average sized towns" (10,000 - 99,999).

It is difficult to make any solid statement about the degree of participation in activities by these students, since freshmen haven't had a chance to get into things on campus. Most students answered the items on activities and fraternities, but no differences are apparent.

Politically, straight students are more conservative than other students. The mean ratings on a 7-point scale from 1 = extremely liberal to 7 = extremely conservative were: freshmen = 3.23, non-freshmen = 3.29, Ss = 3.93, and Ps = 4.11. More straight students also said that their position could not be represented on this scale or that they were not interested in politics (for both categories together, S = 26%, P = 22%, freshmen = 19%, others = 18%).

The idea that straight students are more conservative was supported by data from the opinion questions. One consistent tendency on these questions was the use of the "don't know" category by the straight students. This suggests that they may be straight because of a lack of information or, conversely, that getting information about drugs leads some students to try them.

About the same proportion of straight students (S) as of all freshmen indicated that they thought marihuana produces a physiological need for heroin, but this proportion was higher than for all non-freshmen. Agreement with the statement that marihuana creates a physiological need for *neither* heroin or LSD was less likely for S and P students than for students in general.

Fewer straight students than others saw a social influence on marihuana users to use LSD, while straight students and freshmen in general agreed that this was also true for heroin. Fewer straight students also saw marihuana changing a person's values so that he would then use LSD, and *more* straight students thought this would happen in regard to heroin. The proportion of straight students answering "neither" on both the social influence and the change of values questions was much lower than the proportion of other students using that alternative.

A surprisingly large number of students think that regular use of marihuana increases the likelihood of criminal activity. More straight students and more freshmen hold this belief than do non-freshmen (N = 43%, P = 35%, freshmen = 30%, non-freshmen = 17%). Straight students also take a tougher point of view concerning the Pennsylvania state law (2 - 5 yrs in jail and up to $2000 fine for possession of marihuana, first offense): 16% of *S*s and *P*s thought this law was too lenient vs. 6% of other students. It was thought to be too severe by 29% of *S*s, 20% of *P*s, 50% of freshmen, and 64% of the non-freshmen.

Data from the matrix (page 3, column 8 of questionnaire) indicated that the primary reason given by straight students (both S and P) for never using any substance was, "no desire to experience its effects." For all drugs listed, this reason was given by 40-44% of all *S*s and 55-60% of all *P*s. Secondary reasons for not using concerned reports of harmful psychological or medical effects. Depending on the drug, these secondary reasons were both selected by 10-20% of both S and P students.

To summarize, straight students differ most clearly from other students in that they are more religious, more conservative politically, and take a stronger view against drugs. There is also some evidence that they are more closely tied to their families and that they know less about drugs than do other students.

"Principled" nonusers do not differ much from nonusers who say they might be willing to try some of the substances that we listed. Freshmen are definitely more straight than are non-freshmen. A large decrease in nonusers takes place between the freshmen and sophomore years. Changes in drug use will be discussed further below when we consider the freshmen follow-up survey data.

Drinkers

Another type of drug user is the "drinker," the person whose drug use is exclusively beer and liquor. Such a category was defined more specifically as someone who answered that he used both beer and hard liquor more than ten times and who said that he never used any other drug (except tobacco and No-Doze).

Only one freshman student met these criteria while there were 424 non-freshmen who did. The reasons for this are not clear, but there is at least one possible explanation. Recall that freshmen were over-represented among the "straight" students. Perhaps if high school students use drugs at all, it is for reasons that lead them to select substances disapproved by the general culture as opposed to substances (beer and liquor) that are the culture's drugs of choice. In any case, the following comments will deal only with data obtained from upperclass (non-freshman) students. All comparisons with the general student population will refer to that population excluding freshmen. The extent of use of beer and liquor by the students who met the definition of "drinker" was, beer used 10-50 times by 26%, over 50 times by 74%; liquor used 10-50 times by 43%, over 50 times by 57%.

Drinkers are slightly more likely to be male (79% vs. 72% of general population), to be married (26% of drinkers vs. 20% of general), and to be in graduate school in Engineering and Science (27% vs. 19%). Their place of residence is not significantly different from that of most other students.

Concerning religion, the most obvious difference is that drinkers are more likely both to have been reared in the Catholic faith (34% vs. 27% general and to presently consider themselves Catholic (29% vs. 21% general). Their church attendence is more regular (34% drinkers vs. 27% general) but the difference is not nearly as great as it was for straight students.

The educational level of the parents of drinkers tends to be slightly lower than that of the general student population. There are no obvious differences in family income or in the home town of drinkers vs. others. There is also little difference in their degree of participation in on- or off-campus activities. However, it is slightly more likely that a drinker will be a member of a fraternity or sorority (38%) than will someone from the general population (30%).

Drinkers tend to be more conservative than students in general, but not nearly as conservative as straight students. However, in answers to opinion questions about marihuana, the only consistent difference between drinkers and other students is the greater tendency of drinkers to use the answer, "don't know." Drinkers used that category even more than did straight students.

Demographically, students defined as "drinkers" do not differ dramatically from upperclass students in general. Where differences do exist, they are usually in the same direction as the differences found for straight students. The outstanding exception is that drinkers tend to be older than the general student population, whereas straight students tended to be younger. Drinkers were also more likely to be Catholic and straight students to be Protestant than the general student population.

The remaining results for drinkers are based on responses to the matrix (page 3) of the questionnaire. Most drinkers started their use of alcohol before they entered college: 58% for beer and 51% for liquor. Beer drinking began during the first year in college for 27% of these students and liquor drinking for 30%. One-third of the drinkers say that their first use of both beer and liquor was their own idea. A close friend of the same sex suggested first-time use of beer to 28% of these students and first-time use of liquor to 24%. Parents were also significantly involved in first suggesting use of beer (17%) and liquor (21%).

In our society, drinking is a social activity. This is indicated for this group of students by the report of 93% of them that most or all their friends drink beer and of 86% who say very few or none of their frineds disapprove of beer drinking. The corresponding percentages for liquor are 88% and 80%.

Although only 132 students (31%) answered the question about reasons for use (column 12 of matrix), three alternatives were frequently mentioned. Use of liquor (this question was not asked about beer) to "get high, feel good" was mentioned by 108 students, to "go along with others" by 68 students, and to "be more friendly, enhance sociability" by 65 students. It should be noted that a student could select more than one reason if he wished to do so.

Only 19% of the drinkers thought that hard liquor was addictive. Again, this question was not asked about beer. 55% answered "no," and 7% replied "don't know." Either these students were not aware that alcoholism is a very serious and extensive form of addiction or they defined addiction in such a way that it did not include alcoholism.

Heavy Up and Down Users

This usage type was designed to identify all individuals who engage in heavy use of at least one "strong" drug. Furthermore, it seemed likely that we might find differences between heavy users (10 times or more) of "up" or stimulant-type drugs and heavy users of "down" or depressant-type drugs. More specifically, up drugs included amphetamine, LSD, DMT, mescaline, psilocybin, and cocaine; down drugs included barbiturates, tranquilizers, heroin, morphine, and opium. Marihuana beer, liquor, No-Doze, and tobacco were excluded from consideration in this definition of heavy users.

One must be careful in applying and interpreting this definition. In the up category, use of amphetamines is much more extensive than use of cocaine or the hallucinogenic drugs, so the up category primarily represents heavy amphetamine use and masks any unique characteristics of heavy hallucinogen users. Similarly, use of tranquilizers is more extensive than use of barbiturates or narcotics and the down category will be most representative of the former drug. In later analyses of our data we intend to make finer distinctions between types of users.

Only 18 heavy up and 15 heavy down freshmen users were found to meet our definitions. Therefore, this analysis of demographic characteristics will deal only with non-freshman heavy users (up N = 112 and down N = 98); their characteristics will be compared with those of the general population of upperclass (non-freshman) students.

Females made up a larger proportion of the population of heavy users than they did of the general population: 28% of all upperclass and graduate students who responded to this survey were females, whereas 36% of heavy up users and 45% of heavy down users were female.

Heavy up users were more likely to be undergraduates (77% vs. 66% of all non-freshmen) and to be in Fine Arts (29% - up vs. 12% all) or in humanities (17% up, 10% all) and less likely to be graduate students in E&S (7% up vs. 19% all). Heavy down users were also more likely to be fine arts or humanities undergraduates but not less likely to be graduate students.

Grades of heavy up users were lower than grades for students in general, but the difference was small for heavy down users. It should be noted, however, that over 30% of all students and a like percentage of heavy users did not report their grade point averages.

Heavy up users were more likely to live in a rented apartment (61% vs 37% of all students), but housing arrangements for heavy down users were similar to the general population.

Concerning religion, heavy up users were more likely to have been reared as Jews (29% up vs. 19% all) but were more likely to claim no present religious preference (50% up vs. 30% all). Heavy down users had about the same pattern of reared religion as the general student population, but they too were more likely to claim no present religion (41%). Only 2% of heavy up users said they attended church regularly, as opposed to 15% of heavy down users and 27% of the general population; 62% of up users, 51% of down users and 37% of all students said they never attend church.

Both parents of heavy up users had more education than did parents of non-freshman students in general. This was also true for heavy down users, but the differences were not nearly as large. The economic level was also higher for both kinds of heavy user; 35% of all non-freshman students reported a family income of over $15,000, while this was true for 45% of up users and 44% of down users.

There was little difference in the involvement in on- or off-campus activities of heavy users and students in general, except that heavy up users were a little more likely to say that they frequently engaged in off-campus activities (15% up vs. 6% all). This certainly does not support the hypothesis that heavy users have "dropped out." Heavy up users are less likely to belong to a fraternity or sorority (21% up vs. 31% all).

Politically, heavy up users were very liberal. Their mean rating on our 7-point scale (1 = extremely liberal, 7 = extremely conservative) was 2.53 as opposed to 3.29 for all non-freshmen. The mean rating for heavy down users was 2.98. However, 20% of all heavy up users said that their position could not be represented on this scale, whereas only 9% of all students said that.

The liberal attitude of heavy up users was reflected in their feelings about the state law on marihuana: only 1% thought the law was too lenient and 90% thought it was too severe, as opposed to the 6% of all upperclass students who thought it was too lenient and 64%, too severe. On the other hand, heavy down users' feelings about the law were only slightly more liberal than the general student population.

Responses to opinion questions about marihuana showed that neither type of heavy user thought there was a relationship between marihuana and heroin. However, heavy up users were more likely than the general student population to believe that there was a social influence on marihuana users to use LSD and that use of marihuana might alter a person's values so he would use LSD.

Heavy users did not think that use of marihuana leads to crime and, again, the responses of heavy up users were more strongly in this direction than those of heavy down users.

One very consistent aspect of the responses of heavy users to the opinion questions was their less frequent use of the "don't know" category. Some possible reasons for this: (1) Heavy users have more information about drugs. (2) The social role of drug user includes these opinions.

As mentioned before, heavy use of up drugs primarily means heavy use of amphetamines: 94% of heavy up users used amphetamines 10 or more times. 14% used LSD 10 or more times and 8% used it 2-10 times. This group also included many heavy marihuana users: 60% used marihuana more than 10 times, 19% used it 2-10 times.

The following information concerns only use of amphetamine by heavy up users. The most often mentioned period for starting use of that drug was during the first year in college (41%), followed by high school (20%). Most amphetamine heavy users say they will use it again (63% say they might or would definitely use it) but a significant number say they would not or probably would not use it in the future (23%). Those who stopped or decreased usage of amphetamine most often mention a bad personal experience (20%) as their reason for stopping.

Their first use of amphetamine was most frequently either as a result of the suggestion of a close friend (36%), or it was their own idea (28%).

Amphetamine use clearly is not a social activity for most heavy users: 70% say they usually use it alone. As with other drugs there is social support for usage: 41% of heavy users say most or all of their friends use amphetamines and 44% say none or very few of their friends disapprove of use. However, it is also true that a number of heavy users seem to be going against their friends' feelings since 13% say most or all of their friends disapprove of amphetamine use and do not use the drug themselves.

The most frequently mentioned reason for using amphetamines (column 12 of matrix) was to "feel less dull or sluggish." This reason was given by 43% of heavy users. Other frequently mentioned reasons were: "improve ability to learn or remember" (39%), "improve performance in something physical" (24%), "...... decrease apetite for food" (27%), "get high, feel good" (14%), "facilitate creative abilities" (13%). No response was given by 12% of the heavy up users. These percentages total more than 100% because students were allowed to give more than one reason. Some of these reasons for use are interesting, given that, although amphetamine is an established central nervous system stimulant and appetite suppressant, there is no evidence that this drug has a direct effect on learning, memory, or creativity.

Generally, heavy up users reported that their personal experience with amphetamine (page 5 of questionnaire) was positive: 71% described their experience as helpful and beneficial. Only 4% said it was mostly harmful and 3% that it was very disturbing or seriously harmful. However, when asked to give their primary and secondary reasons for stopping or decreasing use of amphetamine (if they had done so), 20% of heavy users indicated "unsatisfactory personal experience with the substance," as the most common primary reason.

A large number of heavy up users think that amphetamines are addictive (47%); 36% say they are not addictive and 12% do not know.

Heavy use of down drugs is essentially use of tranquilizers; ten times or more by 86% of this group. Only 17% had used barbiturates as frequently and 5% had used opium ten times or more. Marihuana had been used ten or more times by 33% of the heavy down users, a much lower proportion than for heavy up users.

The following information concerns only use of tranquilizers by heavy down users. Some time during high school was the most frequently reported (26%)

period for starting use of tranquilizers. Another 23% reported starting during their first year in college. A physician was the person who suggested use of tranquilizers for the first time for 35% of these students. Since students had been instructed (top of page 6 of questionnaire) to report only usage which was "not on medical advice," It could be that although a physician may have suggested first use of tranquilizers, later use continued without the recommendation of that physician. A number of other heavy down users reported that first time use of tranquilizers was their own idea (22%) or was suggested by a parent (14%).

As would be expected, tranquilizer use is not generally a group activity; 65% say they use alone and only 7% report use in any kind of group. In addition, only 9% of heavy down users say that most or all of their friends use tranquilizers, whereas 26% say that none or very few friends use these drugs. Disapproval of tranquilizer use is not very frequent: 56% say none or very few friends disapprove, 5% say most or all.

The most frequently mentioned reason for using tranquilizers was, as would be expected, to "reduce general anxiety." This reason was given by 43% of heavy down users. Other frequently mentioned reasons were: "relieve anger or irritability" (14%) and "shut things out of mind" (10%). Twenty-two per cent gave no response.

Personal experience with tranquilizers was described as "very helpful and beneficial...with no serious harmful effects" by 52% of heavy down users. Only 2% reported unpleasant or harmful personal experience. Since over two-thirds of the heavy down users did not respond to the question concerning reasons for stopping or decreasing use of tranquilizers, these data will not be presented here.

Eleven per cent of heavy down users agreed that tranquilizers could be physiologically addictive; 58% said they were not addictive and 12% did not know.

To summarize, the characteristics of a heavy drug user depend on which drug one is talking about. Heavy users of stimulant drugs look much more like the stereotype of the drug "head" than do heavy users of depressant drugs. The heavy up users tended to be fine arts or humanities students who lived in rented apartments and came from higher socio-economic levels than did students in general. They were less religious, more liberal, and had strong positive opinions about marihuana. There was also more heavy marihuana use by up users than by down users. In all categories, heavy down users looked much more like the general student population than like the heavy up users. The experience of heavy up users with amphetamines and of heavy down users with tranquilizers was generally reported as being positive and beneficial.

Marihuana Tasters and Users

Two categories of marihuana using persons will be discussed here, the taster (T; one time use with no other use of illegal drugs), and the user (U; use of marihuana two to ten times with no other use of illegal drugs). We attempted to create a category of marihuana head: a person who had used this substance more than ten times and other illegal drugs no more than once, but we found almost no people in our sample who met the definition. Virtually all heavy marihuana users had used some other illegal substance more than once. Thus the two types we are dealing with are "pure" in that their usage of illegal drugs has been limited to marihuana. A great many students who have used marihuana and other drugs as well are not represented in this section, but did qualify for the heavy "up" and/or heavy "down" drug use categories discussed above. Data on these two types of marihuana users were analyzed separately for freshmen and for all other students; where there are significant differences between these two groups they will be discussed, otherwise no distinctions will be indicated here (Tables 9 and 10 do present freshmen and nonfreshmen data separately, however).

There were 26 freshmen tasters and also 26 freshman users. Among the upperclassmen and graduate students there were 72 students who met the taster definition and another 108 who met the user definition. One should keep in mind that 718 students in our sample had tried marihuana at least once (or about 24% of our entire sample), and that 328 of these had used it ten or more times (Extent of use of all drugs will be discussed in more detail later in this report.) Of the latter, as indicated above, few had not also used other illegal drugs and thus they are not included in this section on "pure" marihuana users. In this section all percentages given are percent of either the freshmen sample or of all nonfreshmen unless otherwise indicated.

Who are these students whose experience with illegal drugs was limited to marihuana? They are almost equally likely to be female as males, whereas, females accounted for only about 30% of the total sample. There were no obvious differences in year in school when tasters and users were compared to all students. Major study area (department) also was not strongly related to marihuana use. There was a slight tendency for fine arts and humanities upperclassmen to be overrepresented among tasters (28%) and among users (29%), but this relationship was much smaller than had been obtained for heavy up users. The most notable variations from proportional representation with area of study were in the engineering and science college: upperclassmen in mechanical, electrical and chemical engineering are underrepresented among tasters by 8% (but among users by only 4%); graduate students in engineering and science were underrepresented among users by a striking 11%. Except for these cases, percentages of marihuana tasters and users in the various departments were within 4% or less of the total number of students in the departments.

We obtained no strong relationship between grade point average and pure marihuana usage among the sophomores, juniors and seniors who were the only students who were to indicate their grade average on the questionnaire.

Students' housing locations were related to usage. Thus 17% of all freshmen live at home but only 12% of the tasters and 8% of the users do. Among the nonfreshmen the same pattern is seen: 21% of all of them live at home but only 10% of the tasters and 9% of the users do. Freshmen with marihuana experience who do not live at home live in the dormitories (by school requirement). Upperclassmen, with the exception of unmarried sophomore women, and graduate students could live where they chose at the time of the study. About 37% chose apartments but 49% of tasters and 51% of users were apartment dwellers. Fraternity dwellers were overrepresented by 6% among tasters but not significantly among users.

The religion in which one was reared was also related to use. Freshman and nonfreshman patterns differed, largely in degree. The freshmen class is 42% of Protestant origin, but 50% of the tasters and only 30% of the users were raised as Protestants. While 28% were raised as Catholics, 38% of the tasters and 8% of the users were raised in this religion. Among Jewish-reared students (20% of the freshmen) tasters were underrepresented (8%) and users are overrepresented (46%); the same pattern held for those freshmen answering "none" in response to the religion of origin questionnaire item (Item number 8). Among upperclassmen and graduate students Protestants were proportionately represented among tasters and users, but Catholics (27%) are underrepresented among tasters (22%) and users (18%), while Jews (19%) are proportionately tasters but disproportionately users (32%). Students reared in "other" religions were 4% of the nonfreshmen but 10% of the tasters.

When one considers present religious preference (Item 9) those favoring Protestantism are underrepresented among both tasters and users for both freshmen and all other students by at least 10% in each instance. For those favoring Catholocism the same trends hold but to an even greater extent: 22% of freshmen favor this faith and 15% of the tasters and 8% of the users do; among all nonfreshmen 21% favor this faith, 10% of the tasters and 8% of the users do also. Those students claiming that they prefer no religion at present (25% of the freshmen and 30% of the other students) had substantial marihuana experience (T = 62%, U = 35%, and T = 46%, U = 48% respectively). Usage was inversely related to frequency of attendance at religious services: 39% of the freshmen and 27% of other students said they attended "regularly", but much lower percentages of the tasters (Fr. = 27%, Others = 14%) and users (Fr. = 12%, Others = 10%) did. The reverse situation obtained for those reporting that they never attend religious services (Fr. = 22%, T = 27, U = 38; others = 37%, T = 56%, U = 48%).

Both father's and mother's extent of education were related to amount of marihuana use. If one's father had graduated from college, one was likely to be a user (Fr. = 27%, U = 38%; others 25%, U = 43%). The same thing held true if one's mother had graduated from college (Fr. = 21%, U = 35%; others = 21%, U = 30%). Tasters were not disproportionately students with parents who had graduated from college and were not overrepresented among those with parents at any educational level. Those whose parents education stopped at high school graduation were tasters to a proportionate extent but were underrepresented among users except for nonfreshmen with mothers in this category (for father's education: Fr. = 21%, U = 4%; others = 23%, U = 15%; for mother's education: Fr. = 40%, U = 19%; others = 38%, U = 34%).

Family income is related to extent of parental education and we did find that the extent of marihuana usage did increase with total family income. Students who came from families with incomes in the $5000 to $10,000 range were less often tasters and users than their numbers would warrent (Fr. = 25%, T = 15%, U = 8%; others = 26%, T = 19%, U = 16%). Students coming from homes in the $25,000 and over income range were proportionately tasters but were disproportionately users (Fr. = 14%, U = 27%; others = 15%, U = 24%).

The type of community in which one was raised was related to usage. Most obvious is the overrepresentation of users (though not of tasters) who were raised in suburbs (Fr. = 39%, U = 50%; others = 31%, U = 41%). Freshmen tasters came disproportionately from average-sized towns (Fr. = 20%, T = 31%) and nonfreshmen tasters from cities, but not large cities (others = 8%, T = 17%). In general, the smaller the town of origin the less likely the student was to have been a taster or user.

Two questionnaire items asked about extent of participation in on- and off-campus activities. Since the freshmen were responding during one of their first days on campus only nonfreshmen data are discussed here (the freshmen data in Table 9 is indicative of participation during their high school period). There were no significant departures from proportional representation among the several alternatives of extent of participation for nonfreshmen tasters and users. That is, extent of participation was about the same whether one was a taster or user or not and this was true for both on-campus and off-campus activities. In like manner there was no strong relationship between nonfreshmen membership in social fraternities or sororities and being a marihuana taster or user.

In regard to political attitude, both tasters and users were more likely to regard themselves as liberals and less likely to regard themselves as conservatives than were other students except that tasters were somewhat underrepresented at the extreme liberal end of the attitude scale. The attitude scale ran from 1 ("extremely liberal") to 7 ("extremely conservative"); the freshmen mean rating was 3.23 but the tasters' mean was 2.9 and the users' was 1.9. The trend is weaker among the nonfreshmen (overall mean = 3.29, T = 3.1, U = 2.7).

Table 10 reports data from a series of opinion questions on page 4 of the questionnaire. In response to the item asking whether marihuana creates a "physiological or bodily need" for LSD and/or heroin the bulk of freshmen and nonfreshmen tasters and users replied that it led to neither and in these feelings they considerably exceeded the percent of nonusing students who felt this way (Fr. saying neither were 36%, T = 62%, U = 73%; others = 49%, T = 56%, U = 68%). Interestingly both freshman and upperclass tasters replied "Don't know" about as often as their respective subpopulations but users did so far fewer times (Fr. = 28%, U = 12%; others = 32%, U = 15%).

The second opinion questions asked whether "There may be a social influence on marihuana users to use" heroin and/or LSD. In general, responses were more affirmative on this item than the preceeding one. Both freshman and other users still replied "neither" in the main, but to a lesser extent than in the "bodily need" item (Fr. = 12%, U = 42%; others = 16%, U = 28%). Persentages of "don't know" responses were about the same as in the preceeding question but more students responded "both". In general marihuana tasters and users are less likely than nonusing students to feel that its use leads--whether for physiological or social reasons--to heroin use, but they were somewhat more likely to feel that there may be social influence to use LSD (especially the freshmen users).

A third opinion item asked whether "Use of marihuana may alter a person's values so that he himself decides to use" LSD and/or heroin. Responses to this item were very similar to responses to the "social influence" item; again the preponderance of users answered "neither" and they did this to a far greater extent than nonusing students did (Fr. = 14%, U = 46%; others = 18%, U = 36%).

While more students felt that regular use of marihuana did not increase the likelihood of criminal activity than thought that it did or who were unsure, those who had used the drug felt more strongly that there was no use-crime relationship (Fr. answering "No" = 36%, T = 52%, U = 88%; others = 46%, T = 62%, U = 81%).

The same trend is seen in the evaluation of the Pennsylvania state law's penalties for possession of marihuana: students in general felt it was too strict but those with marihuana experience felt this overwhelmingly (Fr. replying "Too severe" = 50%, T = 77%, U = 96%; others = 64%, T = 95%, U = 93%).

The final opinion item asked the respondent to indicate what percent of CMU students he felt had tried marihuana at least once. The median response for straight students was 20%, for both heavy up and heavy down users it was 50% and for freshmen tasters it was 47.5%, freshmen users 45%, nonfreshmen tasters 50% and nonfreshmen users 45%. The 20% median estimate of the straight students was closest to the figure of 24% obtained in this survey.

Data from the matrix on page three of the survey questionnaire reveal some of the patterns and social psychological aspects of drug usage. We have examined selected information from the matrix for the various user types. In the following discussion of these data once again the percentages given will refer to percent of the freshmen or nonfreshmen, as stated.

Half of the freshmen tasters and 73% of the freshmen users had used or had started to use marihuana during their high school years, and most of the remainder of the usage occurred after high school but before college (T=35%, U=23%). Two freshmen became tasters and one a user during their few days on campus before they filled out the questionnaire. Nonfreshman tasters' use occurred during their third year of college (21%) or during graduate school (17%). The nonfreshmen users were equally likely to have started in their first (24%), second (26%), or third (24%) year of college.

Intent to use marihuana again was asked about in column 4 of the matrix. Two trends are apparent: freshmen are less likely to indicate that they will use again in the future than nonfreshmen and, not surprisingly, users tend to be more likely to use again than tasters. If we combine the number of students replying "Definitely would like to use it" and "might like to use it" into a single percent figure representing positive attitudes toward future use, these relationships are clearly seen (the number of students leaving the item blank or answering, "Don't know" was very small in all four user groups): Fr. T=38%, U=50%; others T=50%, U=71%.

It is sometimes proposed that marihuana use will lead to use of other substances. Students were to estimate the likelihood that they would use all of the substances listed in the matrix, but many tended to overlook substances which they had not already used themselves. Two drugs of substantial interest here are LSD and heroin. The precentage of students not responding to the "intent to use" question for LSD and heroin ranged from 27% to 44% for the marihuana user types. The number of students responding "Don't know" was very small in all groups. No freshman said he "definitely" would use LSD and only one said that he "might" do so (a user); two nonfreshmen said they definitely would like to use this drug (both tasters), and three said they "might" do so (2T, 1U). No student said that he would "definitely" like to use heroin and only one (Fr. U) said that he "might" like to try it. Thus among these students whose use of illegal drugs had been limited to marihuana there was almost no indication of desires to use LSD or heroin.

The person who suggested that the respondent use marihuana the first time (matrix column 5) was more often a close friend of the same sex than any of the other possibilities listed, and this was true of all four user types (Fr. T=42%, U=42%; others T=40%, U=39%). No other type of person was at all near to close friend of the same sex in frequency of suggesting original usage of marihuana.

The most likely setting for using marihuana (column 6 of matrix) was the apartment of a close friend, and this setting dominated all other settings for all user types (Fr. T=35%, U=54%; others T=39%, U=50%). One's own apartment was the second most favored setting for nonfreshmen students (T=22%, U=24%).

The majority of use was reported to be in the company of one or two other persons of the same sex (Fr. T=31%, U=46%; others T=31%, U=24%), or with one or two others of both sexes (Fr. T=35%, U=46%; others T=40%, U=57%). These data are from matrix column 7.

It is interesting that students almost never had begun their drug experience with marihuana. Only one freshman and four others said that they had. In response to the question in column 9 of the matrix asking respondents to number the drugs in the matrix in the order in which they had their first experience with them, the majority of students in each user category listed marihuana as the fourth substance they had experienced (Fr. T=46%, U=54%; others T=56%, U=56%). The other responses are scattered over ranks 1,2,3, and 5, with 5 being the next most frequent rank. Very few persons failed to respond to this item.

Matrix columns 10 and 11 inquired into the number of one's friends using (at least once) and the number of one's friends disapproving use of marihuana, respectively. Not surprisingly more of the users' friends use marihuana than of the tasters' friends, and fewer of the users' friends disapprove of marihuana than of the tasters' friends. Only two persons said that none of their friends use marihuana (both tasters, a freshman and a nonfreshman). If we create a stringent criterion by adding together the categories, "about half," "most" and "all" of one's friends, we obtain the following percentages of each user type that had that many friends who had tried marihuana: Fr. T=23%, U=42%; others T=26%, U=38%. Very few respondents failed to answer this question. Applying the same criterion to the question asking about proportion of one's friends who disapprove of marihuana we obtain the following similar trend: Fr. T=50%, U=27%; others T=33%, U=26%. Again only a few respondents failed to answer this question. Only one person, a nonfreshman user, said that all of his friends disapprove of marihuana use.

Marihuana is not thought to be physiologically addictive by most students in these groups. The most frequent response to this question (matrix column 13) was "no," and the users felt this to be true more than the tasters (Fr. T=50%, U=77%; others T=63%, U=73%). It is notable that an appreciable number of persons replied "don't know" to this question (Fr. T=31%, U=11%; others T=29%, U=15%), however the number of students failing to answer the question was very small.

Students were asked to indicate (column 12 of matrix) the reason(s) why they had used various substances. Only the nonfreshmen data are discussed here because there were so many of the freshman tasters and users failed to respond to this item. In terms of frequency of mention the most popular reasons given for using marihuana were "Get high, feel good" (76% of the users and 51% of the tasters gave that as a reason) and "Explore inner self" (T=31% and U=23%). All of the 24 other reasons received only a scattering of responses even though we tallied as many as six reasons for each respondent. Here it should be noted that when "curiosity" was listed as a possible reason on the freshman follow-up survey, this was the most frequent reason given, with "for enjoyment or pleasure; to get high, feel good" receiving the next most frequent selection.

We inquired into the students' personal experiences with the substances they had used in an evaluative question (page 5 of the questionnaire) taken from Eells (1968). Unfortunately 21% of the tasters and 23% of the users failed to respond to this question with regard to marihuana. Most students found marihuana an innocuous or beneficial drug. The majority of the responses regarding marihuana were to alternative a. --"...very helpful and beneficial... no serious harmful effects" (T=10%, U=28%), and to alternative c. --"...no particular effect... beneficial or harmful" (T=58%, U=44%). Very few responses were given to the other alternatives. One percent of the users reported having had a "...very disturbing, very upsetting, or seriously harmful experience" with it, and 1% of the users and 7% of the tasters have had "...mostly a harmful, or unpleasant experience... but it did not seem serious."

In summary, marihuana tasters and users were students who were equally likely to be males as females, majoring in any department in the University but especially fine arts and humanities. They were less likely to live at home and more likely to live in apartments. Jewish students and those reporting no particular religious background or interest were more likely to use marihuana than other students. The extent of usage among students increased with amount of parental education and income. Those from suburbs were especially likely to have marihuana experience. Usage was not related to extent of participation in on or off-campus activities, but it was related to liberal political attitudes. Most felt that marihuana was not addictive, that it was not likely to lead to use of LSD or heroin, and that its use did not increase the likelihood of criminal activity. Usage was also related to believing the Pennsylvania marihuana possession penalties were overly severe, and to over-estimating the percent of students at the University who had tried marihuana.

Appreciable numbers of marihuana users intended to use it again, but they did not intend to use either LSD or heroin. Most were introduced to the substance by a close friend of the same sex and usually had used it either in a friend's or their own apartment with usually only 1 or 2 others present. Typically marihuana was the fourth drug experienced of the 17 we inquired about. From 25 - 40% of those with marihuana experience said that a half or more of their friends also use the drug, and from 25 - 50% say that half or more of their friends disapprove of using the drug. The most frequently selected reasons for using marihuana were to "get high, feel good," "curiosity," and to "explore inner self." Most students found the drug a beneficial and not a harmful experience or reported no particular effects, good or bad.

Comparisons Across User Types.

Friends using and disapproving. Social support and approval are important reasons involved in initiating and maintaining many kinds of behavior. Certainly this is true of much drug-taking behavior. Many of the drugs asked about in this survey were used primarily in group situations, first used at the suggestion of a close friend, and often used for social reasons (e.g., go along with others). Two questions which directly assessed social factors in drug use were: "What proportion of your friends have used the substance at least once?" (Column 10 of matrix), and "What proportion of your friends disapprove of using this substance?" Responses of user types to these two questions are presented in Tables 11 and 12 for several substances.

In general the data in this table demonstrate that if a student used a drug, he was more likely to have friends who also used it and few friends who disapproved of its use. Straight students, who never used any of these drugs, were most likely to say that none or few of their friends use drugs and that most or all their friends disapprove of drug use. Drinkers responded about the same way - except for liquor and tobacco, their drugs of choice. Obviously, since liquor and tobacco

Table 11

Per Cent of User Types Indicating That Large or Small Proportions of Their Friends Have Used Various Substances[1]

	SS	Dr	HU	HD	UC MT	UC MU
Amphetamine						
none/very few	72	63	13	32	45	56
most or all	1	0	41	14	1	0
no response	26	28	3	21	39	27
Barbiturates						
none/very few	72	64	41	41	52	60
most or all	1	0	9	4	1	0
no response	24	27	20	27	39	28
Hard Liquor						
none/very few	34	2	6	7	2	5
most or all	15	88	84	73	82	87
no response	20	3	2	10	4	3
LSD						
none/very few	72	67	24	39	50	57
most or all	0	0	15	5	3	1
no response	24	26	18	30	35	27
Marihuana						
none/very few	66	50	6	18	20	12
most or all	1	2	52	32	12	22
no response	23	24	7	18	8	5
Tobacco						
none/very few	24	4	2	6	4	2
most or all	17	45	72	52	37	53
no response	20	11	4	14	8	8
Tranquilizers						
none/very few	60	52	35	26	38	38
most or all	1	1	12	9	1	2
no response	23	27	14	16	39	32

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[1] The two categories at each extreme have been added together: none and very few; most and all. Middle categories (a few, a sizeable minority, and about half) are excluded from this table.

Table 12

Per Cent of User Types Indicating That Large or Small Proportions of Their Friends Disapprove of Using Various Substances[1]

	SS	Dr	HU	HD	UC MT	UC MU
Amphetamine						
none/very few	4	6	44	24	12	5
most or all	62	53	13	26	34	48
no response	29	30	5	28	38	28
Barbiturates						
none/very few	4	6	16	18	12	6
most or all	63	54	33	31	38	47
no response	27	29	27	31	38	28
Hard Liquor						
none/very few	18	80	80	84	72	88
most or all	28	2	4	4	2	3
no response	24	7	5	9	10	3
LSD						
none/very few	3	4	17	9	4	4
most or all	66	61	27	37	48	50
no response	25	26	21	31	35	28
Marihuana						
none/very few	4	9	57	36	24	33
most or all	62	43	1	16	14	13
no response	24	26	12	20	12	3
Tobacco						
none/very few	20	39	54	56	45	50
most or all	24	6	8	4	8	7
no response	23	13	9	17	12	11
Tranquilizers						
none/very few	12	15	38	56	11	17
most or all	45	37	9	5	18	25
no response	26	30	22	16	40	32

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[1] The two categories at each extreme have been added together: none and very few; most and all. Middle categories (a few, a sizeable minority, and about half) are excluded from this table.

are the most widely used drugs by our total sample, one would expect that all user types would report more friends using and fewer friends disapproving than for any other substances.

The relationship between using a drug, and having many friends who use and few who disapprove of usage also held for marihuana. Extent of marihuana use increased in this order: marihuana tasters, marihuana users, heavy down users, heavy up users. This is the same ordering for percent indicating that most or all their friends use marihuana, and that none or very few of their friends disapprove of marihuana use.

Factors reducing or preventing drug use. The reasons that were given for using drugs were much as expected: drinkers and marihuana users want to "get High" (although curiosity was also found to be an important reason for marihuana use), users of stimulant drugs (especially amphetamines) want to increase their level of arousal, and users of tranquilizers want to relieve anxiety. It is just as important to ask, however, why some people stop or decrease drug use, or why they never use some drugs at all. These reasons should be especially important to those concerned with drug abuse.

Table 13 gives the percent of user types indicating various primary and secondary reasons for stopping, decreasing, or never using several substances. Freshman marihuana tasters and users are not included because of the small number who responded to this question. These data must be interpreted carefully because of the large proportion of students not responding. Possible reasons for this were discussed on pages 14 and 15.

For most substances in Table 13 (except tobacco) "no desire to experience... its effects" is the reason most often given. It is also the reason most frequently used for all substances by straight students. Among the least mentioned reasons are urging from parents and from friends. Either parents and friends don't do any urging or, if they do, it isn't effective. Apparently most students in these groups are at least familiar with the names of these substances, since the

Table 13

Per Cent of User Types indicating Primary and Secondary Reasons

for Stopping, Decreasing or Never Using Certain Substances

Drug and Reason	SS		Dr		HU		HD		UC-MT		UC-MU	
	Prim.	Sec.	Prim.	Sec.	Prim.	Sec.	Prim.	Sec.	Prim.	Sec.	Prim.	Sec.
Amphetamines												
harmful psychol. effects	6	11	7	11	5	4	5	11	10	11	12	12
harmful medical effects	8	11	12	15	8	9	11	7	27	7	15	20
urging from parents	1	7	1	2	0	0	0	2	0	7	0	2
neg. personal exper.	0	0	0	0	20	7	11	3	0	4	0	0
no desire to exper.	42	8	56	10	12	9	26	8	46	4	47	7
no response	33	61	15	52	45	56	35	55	12	62	13	49
Barbiturates												
harmful psychol effects	7	10	7	12	2	5	4	8	8	8	10	13
harmful medical effects	12	14	13	16	13	12	13	14	18	4	18	18
Obser. of others	1	1	1	1	4	3	6	4	0	3	3	2
urging from parents	1	6	1	2	0	3	0	3	0	6	0	3
no desire to exper.	41	9	59	10	46	9	33	2	53	7	50	6
no response	33	59	15	52	24	59	31	59	12	67	12	52
Hard Liquor												
harmful psychol. effects	3	8	1	1	1	0	1	0	0	0	0	3
harmful medical effects	6	11	1	2	1	3	0	0	1	1	1	1
observ. of others	7	10	3	2	6	4	4	5	1	3	0	4
urging from parents	3	7	1	1	0	0	0	1	0	1	0	0
Neg. personal exper.	1	0	3	1	13	3	6	1	1	0	6	0
no desire to exper.	44	7	4	1	9	10	7	3	10	3	6	3
no response	34	53	88	92	67	79	80	89	86	89	88	90

Table 13 (cont'd.)

Drug and Reason	SS Prim.	SS Sec.	Dr. Prim.	Dr. Sec.	HU Prim.	HU Sec.	HD Prim.	HD Sec.	UC-MT Prim.	UC-MT Sec.	UC-MU Prim.	UC-MU Sec.
LSD												
harmful psychol.effects	18	14	19	18	19	16	17	22	35	15	36	24
harmful medical effects	5	17	11	15	21	13	19	17	19	25	22	21
observ. of others	1	4	0	2	3	5	5	5	0	7	1	4
urging from parents	1	4	1	2	1	0	1	1	0	4	0	0
no desire to exper.	40	9	49	10	18	5	26	7	24	6	23	8
no response	34	54	17	46	30	49	27	42	14	40	15	36
Marijuana												
harmful psychol. effects	12	11	7	10	4	1	9	4	1	1	4	2
harmful medical effects	6	13	6	8	0	1	0	7	1	3	1	4
observ. of others	2	2	1	4	0	2	3	4	3	6	0	2
urging from parents	2	6	1	3	0	0	0	3	1	6	1	3
neg. personal exper.	0	0	0	0	6	2	6	1	11	6	8	2
illegality	1	4	7	10	9	6	5	7	12	6	10	11
difficulty in obtaining	1	0	5	3	11	5	7	4	7	4	8	6
no desire to exper.	43	8	52	8	13	4	17	4	31	4	14	3
no response	33	56	18	53	56	78	52	65	29	65	52	68
Tobacco												
harmful medical effects	15	16	25	14	16	11	18	5	25	14	20	10
urging from parents	2	9	1	4	0	1	0	1	0	3	0	2
neg. personal exper.	1	0	9	3	9	3	4	5	14	1	8	5
no desire to exper.	41	9	26	10	16	9	11	4	19	5	15	7
no response	34	55	33	61	56	74	64	79	36	68	51	67
Tranquilizers												
harmful psychol. effects	6	7	5	8	4	5	3	3	7	4	8	6
harmful medical effects	6	12	9	11	6	8	3	5	7	4	8	10
neg. personal exper.	0	0	0	0	5	1	7	1	0	0	0	1
no desire to exper.	44	7	64	8	42	5	17	0	56	6	56	2
no response	33	67	18	66	34	70	68	83	25	75	18	70

alternative, "have not heard of (it)" was rarely used and therefore it is not listed in the table.

For amphetamines, heavy up users were the only group who did not list "no desire to experience" as their first negative reason. For that group, which includes the heaviest users of amphetamines, "unsatisfactory personal experience with the substance" was most frequently mentioned. For all user types, the two next most important reasons were reports of harmful psychological or harmful medical effects, in that order. These two reasons were given somewhat more often by marihuana tasters and users. It would be interesting to know exactly what "reports" these students were thinking of, not only for amphetamines, but also for the other drugs listed.

"No desire to experience..." was clearly the most common negative reason for barbiturates, with reported harmful medical effects second and psychological effects third. Observation of others is mentioned as a reason by each of the user types, but most frequently by heavy down users.

The highest frequency of no response was for hard liquor, probably indicating that use of that substance had not stopped or decreased. This idea is supported by the fact that straight students (who never had used liquor) did answer the question and again said their principle reason was "no desire to experience." Observation of others and reported harmful medical and psychological effects were also frequently mentioned by this group. In addition, urging from parents was mentioned fairly often as a reason that straight students never use liquor, making this one of the few cases where there was evidence for parents having a significant influence.

For LSD, "no desire" was the most frequent used primary negative reason for straight students and drinkers. Heavy up and down users were equally concerned about reports of harmful medical and psychological effects, while these latter reasons were given more frequently as negative reasons by marihuana tasters and users than was "no desire to experience." Reports of harmful psychological effects are more frequently mentioned as a negative reason for LSD than for any other drug. Perhaps this is related to the large number of newspaper and magazine articles on LSD that appeared during 1967 and 1968.

Reasons for not using marihuana or decreasing marihuana use were also quite varied across user types. Straight students again listed "no desire..." as their primary reason most often, with quite a few giving reported harmful psychological and medical effects as primary or secondary negative reasons. Drinkers did not use marihuana for similar reasons but, in addition, because of the illegality of marihuana. The pattern of reasons for heavy down users resembled that for drinkers, except for the grearer frequency of no response. Heavy up users and marihuana tasters and users were not so concerned with psychological and medical effects of marihuana, but rather with its illegality or being difficult to obtain. These three user types and the heavy down users also mentioned "unsatisfactory personal experience" fairly often as a negative reason. That reason was given most often by marihuana tasters who also gave "no desire to experience" as a frequent reason for stopping use of marihuana. For many tasters, their one experience with marihuana was unimpressive. As with straight students, 6% of the tasters gave "urging from parents" as a negative reason.

The campaign against cigarette smoking was getting stronger in 1968 and apparently was having effects on a significant proportion of students For all user types except straight students, "reports of harmful medical effects" was most often mentioned as a primary and as a secondary reason for stopping or decreasing use of tobacco. However, "no desire to experience" again was mentioned very often.

Except for heavy down users who had a high "no response" rate, tranquilizers were not used or use was decreased due to "no desire to experience" their effects. Reports of harmful medical and psychological effects were also often mentioned.

Knowledge about addiction. Students' responses to the question of whether a certain drug is physiologically addictive are both a measure of information about the drug and some indication of a negative influence on use, assuming that students want to avoid becoming addicted. Table 14 gives the percent responses of user types to this question, i.e., whether a drug "produces very unpleasant physical symptoms when sustained use is stopped." Again, the no response rate is fairly high, especially for straight students and drinkers.

There is little evidence in the literature that amphetamines are physiologically addictive, although a period of depression may follow intensive use and psychological dependence may develope. Therefore, it is surprising to see that almost half of all heavy up users, who are mainly amphetamine users, thought that this drug is addictive. Straight students and marihuana tasters and users frequently answered, "don't know" to the addiction question.

Barbiturates and tranquilizers are addictive when used in relatively large amounts over long periods of time. This fact is not widely known as indicated by the large proportions of "don't know" responses by most user types. Heavy up users are more likely than any other user type to say that both classes of drugs are addictive. As mentioned before, heavy down users, primarily users of tranquilizers, are most likely to say those drugs are not addictive.

Of all the drugs listed in Table 14, heroin is most widely publicized as addictive. Thus, it seems surprising that about 10 - 20% of most user types said that they did not know whether heroin was physiologically addictive. Straight students and marihuana tasters gave the largest proportion of "don't know" responses. However, there were generally fewer "no" responses to heroin than to any other drug. It is likely that the proportion of "yes" responses would have been higher had more students answered this question.

When one talks about drug "problems" alcoholism heads the list in terms of number of people addicted. Thus, it is impressive that such a large proportion of all user types say that hard liquor is not addictive and that students who use alcohol extensively (drinkers) are most likely to say it is not addictive. Heavy up

Table 14

Per Cent Responses of User Types to
Question on Whether Certain Drugs
are Physiologically Addictive

	SS	Dr	HU	HD	UC MT	UC MU
Amphetamines						
yes	12	13	47	20	14	18
no	4	6	36	21	8	15
don't know	38	28	12	19	47	32
no response	46	53	5	39	31	33
Barbiturates						
yes	16	16	31	23	26	20
no	5	5	12	14	3	10
don't know	33	25	28	16	44	36
no response	46	53	29	46	29	33
Heroin						
yes	33	36	54	35	56	55
no	2	1	4	4	0	3
don't know	19	10	11	8	15	7
no response	47	53	31	53	29	35
Liquor						
yes	24	19	44	27	29	6
no	10	55	34	46	52	33
don't know	20	7	11	7	7	51
no response	47	18	12	20	12	6
LSD						
yes	10	8	4	8	8	6
no	17	14	46	22	29	36
don't know	27	25	20	19	35	21
no response	46	54	29	50	28	36
Marihuana						
yes	11	6	4	4	0	2
no	20	26	76	50	62	73
don't know	23	15	6	9	29	15
no response	46	54	14	37	8	10
Tranquilizers						
yes	8	9	20	11	12	12
no	10	11	24	58	17	17
don't know	34	25	31	12	43	35
no response	48	55	25	18	28	36

users included the largest proportion which said that liquor _is_ addictive and marihuana users had the largest proportion answering, "don't know."

The results for LSD are not clear, partly because of the significant proportion of students who did not respond. Heavy up users (a category which includes all heavy LSD users) were most likely to answer "no" and marihuana users were the next most likely group to give this response. The relatively large frequency of "don't know" responses among all user types indicates that, although LSD is not an addictive drug, there seems to be some uncertainty about this among students in these groups.

Marihuana is also not addictive in the form of the "grass" that students are most likely to use, and there is no reliable evidence that the more potent hashish is addictive. About three-fourths of the marihuana users and of heavy up users (who also use marihuana extensively) and 62% of marihuana tasters answered "no" to the addiction question for marihuana. Either they were aware of the evidence that this drug is not addictive or they were stating opinions that are part of the marihuana subculture. The largest frequency of "don't know" responses was given by marihuana tasters probably indicating that they had less information. Although about half the Straight Students and Drinkers did not respond to this question, those who did were less likely than other user types to agree that marihuana is not addictive and they had a fairly high frequency of "don't know" responses.

In general, it appears that among these user types, many students do not have a very accurate view of the addictive properties of several important and widely used drugs. Unfortunately, the results on this and several other important questions have not yet been tabulated for the total sample. It is clear, however, that complete and accurate information on drugs is not reaching many students, expecially those who use drugs most often. At least this was true late in 1968.

Extent and Intent of Use of All Substances.

Up to this point all results have been presented in terms of user types. In order to get a broad view of drug use on the Carnegie-Mellon campus, results for the entire sample will be presented for two variables: extent of use (number of times each drug listed in the questionnaire had been used) and intent of use (likelihood of using each drug in the future). These are columns one and four of the matrix. Results for extent are presented in Table 15 and for intent in Table 16. The no response rate was relatively small on the extent question but larger on the intent question for reasons discussed (pp. 14-15).

The most common substances on the list were the ones most frequently used by students: beer, liquor, and tobacco. These were the only substances used fifty or more times by more than five percent of all students. The most rarely used substances (1% or less have ever used) were cocaine, STP, heroin, speed (injected), morphine, and psilocybin. Other substances with low frequency of use (2-5% ever used) were barbiturates, LSD, mescaline, and opium. Finally, these substances were used rather frequently (10-40% ever used), although not commonly: amphetamines, marihuana, No-Doze, and tranquilizers. Marihuana was the only one of these substances that had been used over fifty times by at least five percent of the sample.

The data for intent to use these substances complement those for extent of use. Combining the two categories, "definitely would" and "might like to," produces a ranking of substances for intent that is about the same as that for extent. When those combined intent categories are compared with the percentage of students reporting use one time or more (the sum of the last four columns of Table 15), it appears that intended use of some substances is lower than previous use. Some examples, with percentages in parentheses, are: amphetamines (extent 12.3, intent 8.6), liquor (ext. 83.7, int. 68.3), and tranquilizers (ext. 11.0, int. 9.5). The largest difference is for tobacco: extent 66.1, intent 35.0. In some cases percentages for intended use were greater than for previous use: marihuana (ext. 23.8, int. 26.1), LSD (ext. 3.4, int. 5.2), and mescaline (ext. 2.1, int. 6.7). However, these data must be interpreted caustiously due to the large number of students not

Table 15

Extent of Use (Percent) of All Substances

For the Total Sample (N=3010)

	No Response	Never	Once	2-10 Times	10-50 Times	More Than 50
Amphetamines	3.7	84.1	2.9	5.5	2.6	1.3
Barbiturates	4.3	91.3	1.1	2.6	0.5	0.3
Beer	1.4	13.7	4.7	19.5	19.4	41.3
Cocaine	4.7	94.2	0.6	0.4	0.0	*
STP	5.0	94.2	0.3	0.4	*	*
Hard Liquor	1.6	14.7	3.5	22.1	24.9	33.2
Heroin	4.8	94.7	0.4	0.1	0.0	*
LSD	4.7	91.9	1.4	1.4	0.5	0.1
Marihuana	3.4	72.8	4.8	8.2	5.8	5.0
Mescaline	4.9	93.1	1.0	1.0	0.1	*
Speed	4.9	94.9	0.1	0.0	0.0	0.1
Morphine	5.1	94.2	0.4	0.3	*	0.1
No-Doze	3.6	59.9	7.9	18.8	7.2	2.6
Opium	5.0	92.4	1.2	1.3	0.2	0.1
Psilocybin	5.3	93.9	0.5	0.2	0.1	0.1
Tobacco	2.5	31.6	5.5	14.7	9.2	36.7
Tranquilizers	4.9	83.1	2.7	6.1	2.1	1.1

* Only one person (0.03%) is represented in each of these cells.

Table 16

Intended Future Use (Percent) of All Substances for the Total Sample (N=3010)

	No Response	Definitely Would	Might Like to	Don't Know	Probably Not	Definitely Not
Amphetamines	34.1	3.8	4.8	4.2	12.6	39.6
Barbiturates	37.4	1.3	2.1	3.7	13.0	42.2
Beer	7.4	46.9	19.1	6.8	11.2	8.4
Cocaine	38.8	0.9	0.9	2.4	7.9	48.8
STP	39.7	1.0	0.9	1.9	6.1	50.1
Hard Liquor	8.4	47.8	20.5	6.6	8.7	7.8
Heroin	39.5	1.0	0.4	0.8	5.0	52.9
LSD	40.0	2.6	2.6	2.4	3.3	48.8
Marihuana	30.0	15.0	11.1	4.1	9.7	29.8
Mescaline	38.8	2.9	3.8	3.5	7.2	43.5
Speed	39.6	0.9	0.7	1.1	5.4	52.4
Morphine	39.6	0.8	0.3	1.2	6.1	51.6
No-Doze	27.4	4.1	11.0	9.2	20.4	27.6
Opium	38.1	1.3	1.4	1.4	5.7	51.8
Psilocybin	40.9	1.5	1.5	4.7	5.7	45.4
Tobacco	15.7	25.7	9.3	5.0	15.8	28.2
Tranquilizers	34.7	2.8	6.7	7.5	15.5	32.5

responding to the intent question.

Figures on extent of drug use, such as those presented in Table 15, are rather tenous for a variety of reasons. Part of the problem is related to the reliablity of the data. Especially when dealing with very low percentages, factors such as faking, uncertain memory, and definitions of what constitutes use can be a problem. For example, it is difficult to believe that there really was one student who used STP more than fifty times. A more serious problem concerns generalizing from this sample to other samples of college students or young people in general. A review of surveys conducted in 1967 (Berg, 1969) found estimates of one time use of marihuana ranging from 5.6% to 34.9%, of LSD from 2.0% to 7.0%, and of amphetamines from 7.0% to 14.0%. Carnegie-Mellon is not UCLA, nor is it Slippery Rock.

However, changes in the drug "scene" that occur over time are probably the main reason for de-emphasizing data on extent of use. In 1967, surveys showed marihuana use to be about 20% at most college campuses. In 1969, the figure was commonly 30% or more. Some surveys taken on the same sample as few as six months apart indicated an increase in use of marihuana of ten percent. (For a further discussion of changes over time see the section below on the changes in usage during the Freshman year.) Of course, the critical question is what is happening during this period of time that leads to increased drug use and this is a question for which we do not yet have a clear answer. Possible explanations include changes in the kinds of students who are coming to college, publicity given to drugs by the media, and social factors producing alienation among students. Very simple explanations should not be overlooked such as fluctuation in the supply of drugs. For example, there is some evidence that, shortly after most of the questionnaires had been returned, a supply of mescaline became available. If our survey had been taken early in 1969 the extent of use of that drug might have been significantly greater.

Finally, it is the opinion of the authors of this report that the critical question for anyone to ask is not, "how much?" but rather, "Why?" and "What happens?"

It is the process of becoming a user and the effects of drug use which should be given the most attention, for when we know only, "how many," what significant understanding of the phenomena can we have?

Changes in Usage during the Freshman Year.

It will be recalled that the freshman class was resurveyed in late spring of their freshman year (1969) with a shortened questionnaire designed to assess changes in usage during the year. The materials for this follow-up survey are in Appendix B.

In the initial survey 94.6% of the freshmen responded (Table 1); in the follow-up only 60.6% did. In the fall the percentage of female respondents among the freshmen was 32%; in the spring it was 37%. Housing patterms of the respondents changed little between the two surveys. In the fall 18% lived at home, 80% in dormitories and 3% in apartments; in the spring 16% of those responding lived at home, 82% in the dormitories and 3% in apartments. Present religious preference also changed little from the fall to the spring respondents. In the fall: Protestants 30%, Catholics 22%, Jews 16%, other 7% and none 25%; in the spring: Protestants 27%, Catholics 20%, Jews 16%, other 8%, and none 29%. Here the changes may reflect real changes in belief as well as possible differences in the percentages from each religious group responding in the spring. In like manner the several categories of father's education changed by 3% or less between the two surveys. The political views of the students should also be a good item to indicate if the same types of students were responding in the spring as in the fall, since those views were shown to be strongly related to usage of marihuana and of up and down drugs. Table 17 compares the political responses of the two sets of respondents.

Table 17

Per Cent of Freshmen Students Responding to each Political Attitude Alternative in Fall and Spring Surveys

Response Alternative	1 (liberal)	2	3	4	5	6	7 (conserv.)	Posit. not rep.	No Polit. Interest	N.R.
Fall %	6	22	24	10	12	5	1	9	10	1
Spring %	5	17	25	14	14	3	1	8	12	1

Again there is the possibility that the shifts seen represent changes in attitudes rather than in types of persons responding. In general these various comparisons of demographic data indicate that the spring respondents were highly similar to the fall respondents.

Table 18 compares the extent of use by fall and spring respondents of the seven substances which were asked about in the follow-up study. Data are presented from two questions in the spring questionnaire matrix, rows 1-a. and 1-b. The first asks for the amount of use ever during the student's school and college years and as such it provides a measure of change when compared to the fall percentages. A more direct indicator of change during the freshman year is the question in row 1-b. which asks for the number of times a substance has been used since September 1, 1968. When one compares the fall totals for any use at all and the spring totals for any use since September 1, one obtains the following percentage changes: amphetamines 4%, beer 6%, liquor 9%, LSD 5%, marihuana 10%, and tobacco -10%. Thus tobacco was the only substance to undergo a decrease in usage during the year. Data on heroin or opium usage among freshmen in the fall was not available separated from upperclass data. There were 11 students who reported using heroin once and another 10 who had used it more than once in the fall. In the spring 21 freshmen reported some usage, 14 of them only one time. Since the questionnaire item read "heroin or opium" on the spring questionnaire (but just "heroin" on the

Table 18

Per Cent of Freshman in Each Extent of use Category for Seven Substances in Fall (N=792) and Spring (N=507) Surveys

	Never	Once	2-10 times	10-50 times	more than 50	N.R.
Amphetamines						
Fall	90	3	3	1	0	3
Spring- Ever used	82	4	7	4	1	2
- Since Sept. 1	82	3	7	4	*	4
Beer						
Fall	27	8	32	19	11	3
Spring- Ever used	14	10	30	29	16	1
- Since Sept. 1	22	8	35	23	10	2
Hard Liquor						
Fall	32	*	33	18	7	9
Spring- Ever used	15	7	43	21	13	1
- Since Sept. 1	21	10	45	16	6	2
Heroin						
Fall	--	--	--	--	--	--
Spring- Ever used	93	3	1	*	0	3
- Since Sept. 1	91	3	1	*	0	5
LSD						
Fall	97	*	1	0	0	1
Spring- Ever used	90	2	4	1	0	3
- Since Sept. 1	89	2	4	*	*	5
Marihuana						
Fall	80	5	6	4	3	2
Spring- Ever used	70	4	7	9	7	2
- Since Sept. 1	67	5	7	11	5	5
Tobacco						
Fall	39	9	17	9	24	2
Spring- Ever used	40	5	16	11	26	2
- Since Sept. 1	48	5	14	8	22	3

* Per cent is less than one but greater than zero.
Totals may not add to 100% because of rounding.

fall questionnaire), it is possible that some of this freshman usage represents use of opium alone or use of such mixtures as opium and marihuana smoked together.

Are the percentage changes which our university experienced during the 1968-1969 academic year typical? Table 19 shows changes over time in percentages of students ever using marihuana from a number of sources over four years. Both the Newsweek (1969) national sample of college students and our survey found a 10% increase, and the University of Maryland survey (McKenzie, 1970) found a 12% increase. The UCLA data are from two sources (Berg, 1969; Behavior Today, 1970), represent different survey years, and find a 17% increase in usage over a 3 year span. The one year increases range from 9 to 12% among these institutions depending upon the year of the survey. Thus, extrapolation of future percentages from these data is hazardous.

Table 19

Per Cent of College Students Ever Using Marihuana: Data from Four Years, Three Universities, and a National Sample of Students

Sample	1967	1968	1969	1970
Newsweek (1969)*	--	22	32	--
U. of Maryland (McKenzie, 1970)	15	24	36	--
U.C.L.A. (Berg, 1969; Behavior Today, 1970)	35	--	--	52
Carnegie-Mellon U. **	--	18	28	--

* A six month span existed between surveys.

** Data from freshman class only.

Is Personality Related to Usage?

This report has demonstrated that some demographic characteristics and some attitudes and beliefs are related to usage of various drugs. In order to assess whether similiar relationships might exist with personality characteristics of individual students we used the opportunity provided by the fall University orientation and testing program to ask each freshman to complete the California Psychological Inventory (CPI; Gough, 1964) and the Study of Values (AVL; Allport, Vernon and Lindzey, 1960). Students responded on two answer sheets with carbon between. Upon completion of the testing the sheets were separated and students put their names on one copy for official university use but put no name on the other. This other copy did, however, contain a serial number which allowed us to match the test results with the appropriate drug questionnaire while preserving the actual identity of all respondents.

Usable personality data was obtained from 752 freshmen. In Table 20 mean CPI and AVL scale scores are presented for nonusers and for all other freshmen (including 1% or 2% who did not respond to the particular drug use question) who have used amphetamines, hard liquor, and marihuana. The CPI scores are standard scores and not raw scores. Recall that, since the freshman were responding during one of the first days on campus, their drug usage was almost entirely pre-college use. The personality data reveal widespread relationships between usage and those personality characteristics which we assessed.

Significant personality differences between student users and nonusers of various drugs have been reported by other investigators. While these other studies will not be discussed in this report, it should be pointed out that there is substantial agreement between the personality data reported here and that of other investigators (Brehm and Back, 1968, Messer, 1969; Rosenberg, 1969; McGlothlin & Cohen, 1965; Steffenhagen and Leahy, 1968; Kleckner, 1968; Jones, 1969; Blum, 1969a) Intensive analysis of the personality data collected in this survey as well as

Table 20

CPI[1] and AVL Scores of Freshmen Who Have Never Used Amphetamines, Liquor and Marihuana Compared to Scores of Users

Scale		Amphetamines				Liquor				Marihuana			
CPI		Never Used	Any Use	t	p	Never Used	Any Use	t	p	Never Used	Any Use	t	p
1.	Dominance	49.8	48.6	.80	n.s.[2]	49.3	49.8	0.39	n.s.	49.7	49.3	0.40	n.s.
2.	Capacity for Status	50.1	52.5	2.06	.05	49.3	50.7	1.92	n.s.	49.8	52.1	2.66	.01
3.	Sociability	49.2	48.1	0.79	n.s.	47.1	49.9	3.35	.001	49.1	49.0	0.12	n.s.
4.	Social Presence	52.3	55.4	2.09	.05	48.2	54.5	6.91	.001	51.6	56.8	4.91	.001
5.	Self Acceptance	56.8	58.8	1.51	n.s.	54.1	58.2	4.94	.001	56.4	59.4	3.14	.01
6.	Sense of Well-being	41.9	37.3	2.99	.05	43.6	40.6	2.99	.01	42.4	37.9	3.94	.001
7.	Responsibility	48.6	42.4	5.54	.001	51.4	46.6	6.65	.001	49.5	42.2	9.05	.001
8.	Socialization	51.0	39.6	8.46	.001	54.1	48.1	6.81	.001	52.1	41.2	11.29	.001
9.	Self Control	43.2	39.9	2.53	.05	46.5	41.3	6.37	.001	43.9	38.9	5.28	.001
10.	Tolerance	46.5	45.2	1.04	n.s.	47.9	45.7	2.70	.01	46.8	44.5	2.47	.01
11.	Good Impression	42.9	42.5	0.36	n.s.	45.1	41.9	4.12	.001	43.2	41.7	1.64	n.s.
12.	Communality	49.1	42.2	5.18	.001	49.9	47.9	2.27	.05	49.6	43.7	6.02	.001
13.	Achievement via Conformity	46.3	38.9	5.90	.001	48.6	44.3	5.35	.001	46.9	40.1	7.51	.001

Table 20 (continued)

Scale	Amphetamines				Liquor				Marihuana			
CPI	Never Used	Any Use	t	p	Never Used	Any Use	t	p	Never Used	Any Use	t	p
14. Achievement via Independence	54.7	55.2	0.44	n.s.	54.8	54.8	0.07	n.s.	54.7	55.0	0.37	n.s.
15. Intellectual Efficency	48.4	45.3	2.30	.05	49.0	47.7	1.59	n.s.	48.6	46.0	2.58	.05
16. Psychological-mindedness	53.2	54.8	1.28	n.s.	54.0	53.1	1.16	n.s.	52.9	55.0	2.22	.05
17. Flexibility	54.7	61.7	4.95	.001	53.0	56.4	3.63	.001	54.1	60.2	5.82	.001
18. Femininity	55.3	56.7	1.09	n.s.	56.4	55.0	1.67	n.s.	55.4	55.5	0.10	n.s.
AVL												
19. Theoretical	44.3	44.9	0.11	n.s.	45.2	44.6	0.86	n.s.	44.7	44.6	0.18	n.s.
20. Economic	38.6	34.4	3.68	.001	38.0	38.3	0.42	n.s.	39.1	34.7	5.28	.001
21. Aesthetic	41.9	48.9	5.18	.001	41.4	43.0	1.81	n.s.	41.0	48.9	8.14	.001
22. Social	38.3	39.6	1.11	n.s.	38.3	38.5	0.35	n.s.	38.1	40.0	2.26	.05
23. Political	40.5	38.5	2.16	.05	39.1	40.8	3.10	.01	40.7	38.5	3.44	.001
24. Religious	35.6	33.6	1.60	n.s.	37.6	34.5	3.98	.001	35.9	33.4	2.77	.01

*

[1] CPI means were computed from standard scores not raw scores.
[2] n.s. - not significant.

additional analyses of the demographic and social psychological data must await additional reports. The following discussion will be concerned with personality differences between users and nonusers of marihuana.

On the CPI, users tended to score higher than nonusers on scales assessing poise and self-assurance in social situations. They also tended to score lower on the scale measuring sense of well-being. Users might be characterized as enthusiastic, imaginative and talkative, however their confidence may be superficial for they have greater self-doubt and more worries than nonusers. On scales measuring responsibility, social maturity and degree of self control there were strong differences between users and nonusers. The former were non-conforming, critical and unreliable with respect to social responsibility as well as being impulsive and self-centered. The scores here reflected a cynicism about social obligations and society in general with an absence of motivation to translate such attitudes into personal actions. A third set of scales indicated less orientation toward achievement by conformity for users than nonusers. Users tended to be insecure, relatively disorganized under stress or under pressure to conform and were pessimistic about their occupational futures. A fourth class of scales measured intellectual and interest modes. Users scored higher than nonusers here, indicating greater flexibility and adaptability in thinking, as well as greater rebelliousness toward rules, egotism, and cynicism than the nonuser.

On the AVL, marihuana usage was related to five of the six scales. Users tended to score higher on the aesthetic and social scales and lower on economic, political, and religious scales. Interestingly, this is the same pattern often obtained when one compares engineering students (who are similar in their value profile to the nonusers) to fine arts and design students (Allport, Vernon, and Lindzey, 1960). In general, then, users are more concerned with the artistic and aesthetic, and less with the business-like, pragmatic, and the conventionally religious. The social scale score of the users is almost exactly equal to that of a national sample of college students, while the aesthetic score is well above, and the religious score is well below, those of the national sample (Allport, Vernon, and Lindzey, 1960). This profile indicates that the user is more apt than the nonuser to value things and events for themselves rather than for their applications.

It should be noted that the personality profiles of the users of all three substances in Table 20 show significant and very often similar differences from those of the nonusers. As Brehm and Back (1968) demonstrated, there are significant differences between those pro- and anti- drugs in general so these similarities across substances could have been expected. There is also a similarity between our findings and those of other investigators cited earlier that users were more insecure, pessimistic, and cynical and also were more flexible and skillful in self-presentation than nonusers. These data suggest to us that drug usage should not be conceived of as an isolated aspect of a person's character. Rather, they suggest that drug taking is one of many symptomatic behaviors which indicate a process of coping with problems in living of the user. People cope and adapt in many ways to the stresses and problems which they face. In the history of men drugs have consistently been used for this purpose (Blum, 1969b) as have ideological and religious belief systems and a wide variety of other behavior patterns. A considerable amount of additional research is needed to reveal the full extent and nature of the relationships between these behaviors which include drug-taking, and the problems which are being responded to.

Analysis of Notes Returned With Questionnaires.

This section is based on notes which were invited by statements included in the introductory letters and the Direction Cards accompanying the questionnaires, to the effect that students wishing to communicate additional remarks or information after filling out the questionnaire were welcome to do so (See Appendices A and B). The original questionnaire itself did not ask any questions calling for other than a multiple choice response, however the freshman follow-up form included one optional question requesting comments or remarks.

Two hundred and ten students did include notes in their returns either in the form of comments scrawled in the margins, separate notes either hand-written or typed, generally returned with the questionnaire, although occasionally some notes were returned through the mail apart from the questionnaires. When the notes contained potentially incriminating evidence pertaining to usage of illegal substances, they were retyped and the original notes were destroyed.

For the most part, these notes necessitated a subjective evaluation, although some data were codified and employed in a systematic analysis of types of responses. Examples are provided to better illustrate the tenor of the material.

The one question which directly elicited notes, and went one step further in structuring the response, sought information about the positive or negative effects of the various substances upon the users (page 3 of freshman follow-up survey). The repsonses to this optional item were sorted into the categories below across two variables: The quality of the experience and the legality of the substance used. At first it was thought that a "neutral experience" category would be useful, but this proved untrue.

Category	No. of Responses	
	Original Survey	Freshman follwo-up
No qualitative Statements	70	37
Legal substance positive experience	3	11
Illegal substance, positive experience	6	11
Legal and illegal substances, positive experience	0	2
Legal substance, negative experience	0	9
Illegal substance, negative experience	0	5

Category -(continued)	No. of Responses (continued)	
	Original Survey	Freshman follow-up
Legal and illegal substances, negative experience	0	1
Legal substance, positive and negative experience	12	1
Illegal substance, positive and negative experience	2	7
Legal and illegal substances, positive and negative experience	0	12

It is interesting to note that 33 primarily positive experiences were reported and 15 primarily negative experiences. In addition 34 mixed experiences were reported. An almost equal number of students reported illegal usage (N=35) as legal usage (N=36), and 14 others reported usage of both. Accompanying these responses were several remarks to the effect that students found it extremely difficult to classify a drug, alcohol, or tobacco experience as "positive" or "negative but rather the terms "pleasant" and "unpleasant" might have been more appropriate.

The following excerpts typify the negative experiences reported by users of illegal drugs. (Positive experiences are recorded below). All notes are reproduced exactly as written.

> "Marihuana which I had my first experience with just a week ago. I really didn't expect to happen, but since it was there I thought I'd try it and nothing happened. I have often felt much higher on nothing but happiness and the beauty of the world and nature. So I just am glad it didn't have any effect so I'm not tempted to try it again because I'm fine without it.
>
> "I strongly feel that the use of pot and/or hash--the resulting effects--are merely a reflection of one's present state. My first experience was very beautiful the love and peace I held within at that time was intensified and magnified by the people and surrounding around me.
> My second and last experience was quite the opposite. I was very confused at that time (facing a difficult identity crisis) and my high was chaotic and extremely depressive, bordering on insanity. I do believe that in both cases, "reality" was more

> deeply perceived; the reality being what one wants it to be. I considered afterwards that at this point, pot could be more harmful to my mental health, ane therefore decided not to touch it until I could be assured of my own stability. In the former case however, I do believe that pot is something "sacred" a thing from which man can derive great benefits."
>
> "The one negative aspect is the irreversible high or floating condition, which produces an inability to concentrate, that could be disasterous."

Notes accompanying the original questionnaires dealt explicitly with the qualitative expèrience with the substance in question in only 14 instances (presumably because the original questionnaire did not expressly request such data whereas the freshman follow-up questionnaire did). Of these 14 comments, 10 were directed toward the taste or medical effects of tobacco and alcoholic beverages.

Included in notes from the follow-up questionnaire were comments about the nature of experiences resulting from the ingestion of the "psychedelic" drugs, primarily in this instance, cannabis and LSD. The following categories were suggested by the data, and the number of such responses compiled as seen below:

Experience of User	No. of Responses
Facilitate social communication	4
Psychological insight or perception	4
Paranoia	3
Lethargy or apathy	3
Time distortion	2
Heightened Physical perception	2
Exceptionally "good" experience	0
Exceptionally "bad" experience	1
Inability to concentrate	1
Total	20

As can be seen from these data, few students chose to describe explicit effects of the drug experience. This was particularly true of marihuana. More typical responses are exemplified in the following selected passages:

> "Grass and hash have had and will continue to have a rewarding experience with. I feel the high from marihuana has been one of the experiences that unlocked many closed doors in my intellectual and emotional (sensitivity) development. No other factor has contributed to this development on a comparable scale. The experience has been quite rewarding. As for ill effects, I can register none."

> "Marihuana and Hashish: an acquaintance needed someone to walk her to "wild" party. I offered, intending to try grass if it was present. They had had hash and grass. I smoked both. I had already decided beforehand that I would start, because of the good experiences claimed by my best friend, and the lack of evidence that it was potentially harmful.
> Positive effects: relaxed feeling of well-being, sense of group, easy high
> Negative effects: none".

LSD experiences, however, were reported more vividly.

> "On acid I was also extremely relaxed. It seemed as if my mind had hit a "dump" button and dumped all the most beautiful things I had ever seen back into my conscious. Colors were very pure-brilliant without a trace of greying or dulling."

> "I took LSD for the first time after having taken mescaline for the first time it was a very religious experience and I feel that it helped me emotionally. I felt high for about a week after. (I also took a cold remedy for medical reasons which contained bella donna compounds) It really screwed me up. About a week after that I took LSD and mescaline again. When I came down, I had gone through some permanent emotional changes. I feel that the LSD worked on my subconcious straightening out problems that 2 yrs. of psycho-therapy couldn't help."

Several other observations are of interest: seven students described considerable pressure from significant peers, exceeding the usual group pressure to "follow the crowd." Of the seven, three were referring to pressure to use alcohol, and four described pressure to smoke marihuana. Another source of pressure was clearly felt in at least one instance to stem from the academic demands of the institution. On the subject of the institution, three additional students commented that they felt that the university tacitly condoned the use of illegal drugs, and that this attitude (or non-attitude) on the part of the school was shameful. All four of these remarks came from students who profess usage of legal substances only.

Ten students chose to openly philosophize or moralize about legal and illegal drug usage, and the wide range of these ten responses appears to reflect the general campus-wide disparity on the subject of the wisdom and morality of illegal drug usage. Four of these comments came from users of illegal substances, and six from users of legal substances only. The ten responses varied from enthusiastic approval to an equally hearty disapproval of both legal and illegal substances, and were not discernible in terms of whether or not the authors used illegal substances. The more generally expressed feelings, less explicitly stated than the opinions of these ten, are that any usage, legal or illegal, is the business only of the individual concerned, i.e. "Though I think the mental and medical hazards involved with most drugs make them unfeasible for me, I would not care to approve or disapprove of someone else's use."

Although the original questionnaire did not directly solicit comments, the question concerning legal penalties for marihuana possession in particular drew forth many spontaneous responses. Thirty-six students offered extraneous repsonses to this item. Of the more extensive comments, 14 were to the effect that the penal- was too severe, 2 that it was too lenient, and 2 that it was about right. Quite a few students simply added the word "absurd" after the alternative answers provided to the question.

Twelve students commented on their observations of friends' experiences with drugs. Three users of illegal substances reported being frightened by seeing their friends on bad trips, for instance:

> "I have observed frightening things in others. The boy who introduced me to marihuana had been sick a couple of days and had not eaten one entire day. That night he smoked and had quite a bad time. For almost three hours I held him in my arms while he kept saying he was scared. He didn't know why he was scared or of what he was scared. During this time he was not completely coherent and was not able to control himself to the point of functioning properly (driving a car etc.)."

Five other comments concerned the ill effects of alcohol on persons observed in social situations.

Interestingly, eleven users of illegal substances announced their intentions of abandoning these substances. Two stated that they had had good experiences, but had learned all they wanted to know about themselves or the particular drug. Three reported bad experiences, two reported mixed experiences, and one other stated indifference. Three were giving up drugs because of the legal risks involved. (No-one reported being arrested, which is notable as a number of students had been arrested on drug charges.)

Extreme attitudes and unhealthy ones occurred as frequently among users of legal substances as among users of illegal substnaces. Considerable moderation was apparent in the responses of users of both legal and illegal drugs. Several examples of moderation expressed by illegal users:

> "I know of some drug users who have really become dependent on marihuana, LSD and combinations there of, and nearly all are seeing psychologists. I feel some drug use could probably help some people, but repeated and frequent use can only harm an individual by not allowing the innate "moral regeneraters" every person has, to develop to the point necessary for the mature person. This is especially dangerous among the young, where maturity should be crystallizing. I feel everyone should use drugs, but only about a half dozen times."

> "I used marihuana out of curiousity and because some of my friends had tried it and I could see no harmful effects that had occurred due to its use. I think it is true that marihuana enabled me to look at certain objects and feel things in general differently than I had before its use. I was able to let myself go totally; I had no inhibitions and my imagination was quite stimulated. On the other hand, I don't think that I will use marihuana again."

It is evident that any drug usage raises serious questions sooner or later in the minds of the users, and that usage of illegal substances is a question of concern to a great number of college youth.

The following are 2 divergent freshman responses representing opposite extremes of attitudes about drug usage:

> "I started smoking because I wanted to be cool. Then I started drinking because I was bored. I still smoke and it is the only drug I can't do without. I quit drinking because it rots your head.

Instead of thinking, one uses it to forget. Before I started grass I was opposed to it. I started one night because I felt that I didn't have anything to lose and because I had already thought of suicide so grass didn't seem so bad. I really dug it. Then the opium was one step higher. Speed was not too good but it also gave me a different perspective. Acid came to my head a little while ago. You may think that I've wrecked my head, but I now realize the insanity that you have all wished on yourselves. And so I'm leaving this fucked up institution for the greener grass on the other side of the hill. So long people."

"First and foremost: The last time I took this test I lied. A lot. Put it down to a young kid kind of hoping the people around me during the test would read over my shoulder and find out what a hip guy I was. That part of my personality had died: this here is straight business.

Marihuana is a benign weed. I have seen it misused; I suspect it is not misused as much as, say liquor, I use it as my parents use liquor, as a tranquilizer, as social thing, as fun.

Speed is in some very rare cases a necessity, in most cases an aid. It is misused; so is the Allegheny River. The University should not (in my opinion) restrict the prescription of Ritalin. The other stuff is around, it will be used in a high pressure environment like school. Better from the pharmicist than the pusher.

Which brings us to my next point: hallucinogens, LSD, but more notably mescalin. This stuff is medicine, pure and simple. It has helped me to structure my approach to the world in a much more coherent and effective manner that I believe I would have been able to without it. I guess it's a matter of perspectives. (It certainly has not helped my typing, however) You are people in supposedly responsible positions, please work to understand the drug and its effects. Also please work to save my fellow students from the dangerous crap passed as "mind expanding" by the criminal element in this society. I am not currently using them, I was very sensitive to their impurity.

I believe that the Federal whatevers responsible for our drug laws are at best misguided people, at worst defenders of an establishment that is rightfully running scared.

I do not expect the Pirates to take the pennant."

Summary and Conclusions

A survey of the entire student body of Carnegie-Mellon University was carried out in the fall of 1968. The questionnaire was anonymous and included demographic and background information, 13 questions on various aspects of the use of 17 drugs and other substances, and several opinion questions. Upperclass and graduate students received the questionnaire by mail. Freshmen were tested _en masse_ and also completed the California Psychological Inventory (CPI) and Allport-Vernon-Lindzey Study of Values (AVL). In addition, all freshmen were sent a follow-up questionnaire (similar in format to the one in the fall, but shorter) in May of 1969.

A total of 3010 usable questionnaires were returned in the fall survey, or 67.6% of the students who could be reached. Analysis of the non-respondents indicated that they were most likely to be male Fine Arts students or graduate students in Engineering and Science. Six types of drug users were defined and results were presented for each of the six types:

Straight Students (N = 189) had never used any of the drugs about which they were asked. They were more religious, more conservative politically, and took a stronger view against drugs than did students in general. They also knew less about drugs than did other students.

Drinkers (N - 424) regularly used beer and liquor, but no other drugs except perhaps tobacco or No-Doze. This group did not differ greatly from students in general, except that they tended to be older and to be Catholic. Most drinkers started using alcohol before entering college and used liquor in order to "get high" or "feel good." Over half did not think that liquor is physiologically addictive.

Heavy Up (N = 112) _and Down_ (N = 98) _Users_, used some stimulant or depressant drug ten times or more. Generally, the drugs used were amphetamines for heavy up users and tranquilizers for heavy down users. Heavy users of stimulant drugs looked much more like the stereotype of the drug "head" than did heavy users of depressant drugs. The former tended to be fine arts or humanities students who lived in rented apartments and came from higher socio-economic levels than did students in general. They were less religious, more liberal, and had strong positive opinions about marihuana. There was also more heavy marihuana use by up users than by down users. Females tended to be over-represented among heavy down users. Experience with amphetamines and with tranquilizers was generally reported as being positive and beneficial.

Marihuana Tasters (N = 98) and Users (N = 134). A taster had used marihuana only once and a user two to ten times and both had used no other illegal drugs. Both tasters and users were more likely to be fine arts or humanities majors who lived in apartments. Jewish students and those indicating no religion were more likely to use marihuana than were other students. Marihuana use was also related to higher levels of parental education and income, living in the suburbs, and liberal political attitudes. Most tasters and users felt that marihuana was not addictive, did not lead to use of LSD or heroin or to criminal activity, and they overestimated the amount of marihuana use on the campus. Most intended to use marihuana again, but not to use LSD or heroin. Typically, they were introduced to the drug by a close friend of the same sex and usually had used it either in a friend's apartment or their own with only 1 or 2 others present. The most frequently mentioned reasons for using marihuana were to "get high, feel good," "curiosity," and to "explore inner self." Most students found the drug a beneficial and not a harmful experience or reported no particular effects, good or bad.

Several comparisons were made across user types. It was shown that if a student used a particular drug he was more likely to have friends who also used it and few friends who disapproved of its use.

Students gave primary and secondary reasons for stopping, decreasing or never using drugs. The most common reason given was "no desire to experience its effects;" among the least frequent reasons was urging from parents and friends. Heavy up users gave "unsatisfactory personal experience" as their most frequent reason and this was also mentioned by some marihuana tasters and users. Reports of harmful psychological effects was more often mentioned for LSD than for any other drug and reports of harmful medical effects for tobacco. Asked whether several substances were physiologically addictive, it appeared that, among user types many students do not have a very accurate view of the addictive properties of several important and widely used drugs.

Data on the total sample were presented for the question on extent of use (number of times used) and intent of use (likelihood of future use) of all substances. Most commonly used substances were beer, liquor and tobacco; most rarely used were narcotics and hallucinogens. Use of amphetamines, marihuana and tranquilizers was frequent but not common. Amount of intended future use was about the same as previous use, except for a large decrease in intent to use tobacco. It was emphasized that figures on extent of drug use are tenuous, primarily due to changes in the drug "scene" over time, and that the question of extent is less important than questions of motivation for, and effects of, drug use.

Analysis of the freshman follow-up survey (rate of return 60.6%) showed increased use of several drugs. The 10% increase in marihuana use was consistent with the national trend at that time. The only substance for which there was decreased use was tobacco (-10%).

An analysis of CPI and AVL data for freshmen was presented which found significant relationships betweenusage of several substaces and personality characteristics of the users.

Finally, an analysis was made of the written notes returned with some questionnaires. These notes gave some idea of the qualitative experiences of users and motivations for use.

Implications and Future Directions.

Current implicit if not explicit explanations of drug usage often appear to regard usage as an isolated aspect of the user's life leading to the belief that if the supply of drugs were only removed, then all would be set right. We believe that the findings in this report indicate the inadequacy of this view. Clearly, drug use was not something happening to everyone who replied to our survey. Consistent and strong relationships between characteristics of users and the nature and amount of their drug usage were found, as summarized above. The personality data, combined with that of the other investigators cited, suggests that some people have a predisposition to take drugs. Such persons typically have strong self-defined dissatisfactions with themselves coupled with the absence of significant restraints against self-administered drug use.

We have a great deal yet to learn about drug usage. The present project intends further analysis of the data on hand to delineate the process of becoming a user which we believe to be a social psychological rather than primarily an individual motivated one. Further, we wish to trace the process of diffusion of usage through the university population, and to learn more about the process of terminating use which may help us to understand why use began in the first place. We continue to be interested in changes in usage over time and will remeasure the freshmen of the initial survey during their junior year, yielding 3 longitudinal assessments of this class.

A number of other questions are suggested by the results presented here. What is the relationship between drug use and knowledge about drugs? Our straight students appeared to know the least about drugs. Knowledge that marihuana is a relatively mild substance may lead one to try it. On the other hand, having tried marihuana, one may have his own evidence that it is a mild drug. He may also hold the opinion that marihuana is harmless because that is the view of his friends, who also use marihuana. It seems that the more widespread the use of a drug, the more favorable are the opinions about that drug. We do not know the extent to which students' opinions about drugs are based on fact as opposed to agreement with views of friends and with their own behavior. Unfortunately, "facts" about drugs are not always available, marihuana being an outstanding example.

Much more needs to be learned about drug use and academic performance. We found little relationship between grade point average and drug use, although grades of heavy up users were lower than grades of students in general. This needs to be analyzed more closely. Also, measures of academic performance other than grade average should be considered, e.g., creativity and independence. If it is demonstrated that heavy drug users do not perform as well academically, the problem remains of determining whether drug use is a symptom or a cause or both.

One of the questions that most concerns students, especially drug users, is what causes a "bad trip?" Does it happen only to a certain type of person and why does it happen only sometimes. There were a number of reports of "unsatisfactory personal experience" in this survey, but this could simply mean that the experience was not as good as expected. There were very few reports of severely harmful experiences with any drug. Again we need to look at our data more closely on this point and gather more information, but it is clear that if strongly unpleasant experiences are extremely rare, it would make little sense to try to convince students that this is a reason not ot use some specific drug. Again, marihuana is a good example.

The finding in the freshman follow-up survey of a ten percent increase in use of marihuana could lead to speculation about whether that drug will ever be as common as beer. If the trend is still an upward one, what does this say about our drug laws? In the absence of evidence that marihuana is a harmful drug, it will be difficult to maintain the strong current laws against use and possession of this drug, laws which most students believe to be too severe. Perhaps even the milder penalties that are included in some of the legislation currently being considered at federal and state levels will be widely ignored. We did obtain evidence that some students did not use certain drugs (particularly marihuana) because they were illegal. The effects of changes in drug laws and in law enforcement (if that occurs) would be an interesting topic for further study.

While we have much to learn we also feel that the data which have already been compiled are valuable to those responsible for formulating and implementing drug policy for students. It would seem that valid data on the characteristics of users and their usage are important kinds of information for successful drug education and rehabilitative programs. As just one example, this report isolates some of the specific informational dificiencies which many students have regarding the addictive properties of various drugs. In subsequent phases of the research we hope to relate age and educational level of initial usage to characteristics of later usage. These data would allow programs to be timed for maximal effectiveness.

This report has emphasized characteristics of individuals which are associated with use. We wish to close, however, with a plea that society examine its own role in contributing to the creation of problems which students sometimes cope with by using drugs. Why should the suburbs and affluent families produce far more than their share of drug users? What role do the family and schools play? These are important issues; it would seem to be far easier to restructure pressure-inducing school policies, for example, than to provide individual therapy to large numbers of students who turn to drug usage because of these policies. We may be overly-optimistic about the readiness with which social structures may be modified, however when one considers the scarcity and general ineffectiveness of individual therapy, at least experimental institutional modifications seem to be called for (Goldstein, 1970).

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Appendix A

Original Survey Materials[1]

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Letter Accompanying Questionnaire	89
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Directions and Reply Card	91
Fall Survey Questionnaire	92

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[1] All survey materials including the fall and spring questionnaires were composed by the authors of this report and are in no way the responsibility of the United States Public Health Service.

Carnegie-Mellon University

Department of Psychology
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Pittsburgh, Pennsylvania 15213
[412] 621-2600

Dear CMU Student:

Drug use has received a lot of attention from the newspapers, magazines and television, particularly use by students. In many cases this publicity has been undocumented, sensational and misleading. Very little is known about the extent of drug use among students and about their reasons for using (or not using) drugs. Unfortunately policy is continually being made on the basis of such poor information. Also, attention has centered on marijuana, LSD, and other psychedelic drugs when it may be that other substances such as alcohol, heroin, or amphetamines deserve greater concern. There is clearly a great need for unbiased information on the place of such substances in student life.

We are asking your cooperation in an attempt to get good information of a type that is presently rare everywhere. We ask that you give some of your time to answer questions about the incidence of use of drugs and other substances, reasons for such use (or nonuse), and your attitudes towards drugs.

This study is sponsored by a grant awarded to us by the National Institute of Mental Health. The proposal for the research was initiated entirely by us, and not by the university administration or any other authority, although the study does have administrative approval. Some students have requested that the study be done and have cooperated with the research staff by talking with us about drug usage. Professional research ethics will be strictly observed throughout the study. Our purposes in conducting the research are simply to better understand usage and to share our understanding with others. We are interested in identifying patterns, trends, and relationships. We are *not* interested in identifying individuals and this concern has led us to sacrifice some important questions.

There are several reasons for conducting the study with the whole campus (data from the freshmen has already been obtained). First, to obtain an accurate, unbiased picture of the drug usage of the entire student body. Second, to provide information to help us in counseling and educating students who want to know more about drugs. Finally, to serve as a basis for future research in greater depth. A complete or very nearly complete response from the students is necessary because the data might be biased in serious — and worse — *unknown* ways by only a partial response or by incomplete questionnaires. In this area the scarcity of good information makes your cooperation even more important than it usually is in survey research.

Because some of the practices inquired about are illegal, the questionnaire and method of returning it have been carefully designed so that replies are entirely anonymous while still making it possible for us to send reminders to those who do not reply (as explained on the Directions Card).

If you feel that the questionnaire does not allow you to express your views adequately (and no questionnaire really does since it must be limited to certain preselected choices), we invite you to communicate with us more fully. A note, preferably typewritten and enclosed with your questionnaire, is suggested, but it may be sent separately if you desire. If you want to telephone one of us no attempt will be made to determine your identity and we would be grateful for the chance to hear your views. If you have questions which you would like answered before you respond to the questionnaire, any of us will try to provide answers.

If you specifically wish not to participate in this survey for any reason, please enclose your blank questionnaire in the return envelope and proceed as indicated on the "Directions" card. We will then not bother you with further attempts to get the questionnaire returned, however we hope that all students will be willing to respond so that we get meaningful and reliable information.

Due to the number and length of the questionnaires, it will take several months to tabulate and analyze the data. Thus, we do not realistically expect to have a report of our findings until next summer. This report will be made available to all interested students at the beginning of the next school year and will be mailed to those graduates who want it.

Please follow the directions printed on the enclosed "Directions" card, and please return the questionnaire immediately since the analysis of the data cannot begin until all of the forms are returned.

Once again, a complete return is needed to get results that are meaningful. Your prompt return of the questionnaire will save you the bother and save us the expense and effort of follow-up letters and calls. We hope that you agree that this is an important and worthwhile project — for all of us.

Joel Goldstein
JOEL GOLDSTEIN, PH.D.,
Assistant Professor of Psychology

Walter H. Abel
WALTER ABEL, PH.D.,
Counselor and Research Psychologist

James Korn
JAMES KORN, PH.D.,
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To Certain CMU Students:

According to our records you are among the minority of students who have not returned a "Directions" card so we do not know if you have returned your drug survey questionnaire.

LACK OF TIME?

If you have been neglecting your reply for lack of time we ask that you consider yourself nudged and return the materials as soon as possible.

NOT A USER?

If you have not responded because you have had little or no experience with most or all of the substances being asked about, remember we need responses from *ALL* CMU students, users and nonusers, in order to carry out a meaningful survey.

CONCERNED ABOUT BEING IDENTIFIED?

If you have hesitated to respond for fear that your personal identity might be discovered, because you do not understand the purposes of the survey, or because you are concerned about the effects of the survey upon the enforcement of drug laws on the campus, we hope that our statement in the November 20th *Tartan* (misprints and all) helped to clarify these issues. Let us summarize our thoughts about these concerns here.

We have no reason to nor do we even want to be able to identify individuals. None of the materials are marked in any way and they may be traded about at will. The survey materials are not sufficient basis or evidence for arrest or conviction. The data will be stored in a coded computerized system and the questionnaires and directions cards will be burned as soon as possible. IF you feel that your particular set of background characteristics might identify you (and the categories have been kept very general to reduce this problem) omit the most highly identifying item(s) rather than not responding at all.

Some people are under the impression that finding out how much usage there is, is our primary aim. This is not so. If it were, we would have settled for the very brief questionnaires used at most other colleges which have had surveys. We are seeking to create profiles of characteristics of users of various substances, of patterns of use, and of attitudes towards and experiences with the various substances. Incredible as it may seem, empirical data on these basic matters is almost nonexistent and we believe our survey to be the most extensive wide-scale investigation yet to be conducted.

In checking with investigators at the California Institute of Technology, Brown University, the University of Vermont, the State University of New York at Buffalo, 5 colleges and 8 high schools in California (research of Dr. Richard Blum), among others, we find that all report that their surveys have had no effect on the amount or nature of the law enforcement situation at their campus. We believe that the same will hold true here and we are taking several steps to insure this. As we have said, no data will be released before the mid-summer or next fall. At that time there will be made available a report to students, but *it will not deal with how many users there are.* It will deal with characteristics of various types of use and nonuse. The final report will be in technical form in a scientific journal or monograph and will not be ready for at least two years from now at the earliest.

It is our opinion that we must assume that the authorities already suspect considerable illegal drug usage on campuses in this area and have them under observation.

We have already received questionnaires from 60% of the student body (and about 90 of them contained notes for which we are grateful). In spot-checking it becomes clear that we are obtaining a heavy response from both users and nonusers. Students who resist returning a questionnaire cannot prevent the survey from being completed; there is simply too much useful data on hand for that. They, and students who deliberately "fake" their responses, contribute to the considerable amount of public misinformation which already exists. It is a matter of having your experience and opinions counted or of letting yourself be represented by others who may be very different from you.

If you desire additional materials for any reason, you may request them by calling any of us or by leaving a message with the secretary of the Counseling Center (extension 280). Notes concerning any aspect of the study may be sent to any of us at the Psychology Department through the campus mail, either separate from or enclosed with a questionnaire. If any group of students would like to meet with an investigator, we will do our best to arrange a meeting.

Sincerely,

Joel Goldstein, extension 240
James Korn, extension 278
Robert Morgan, extension 280, 286
Walter Abel, extension 280, 286

DIRECTIONS

1. Please fill out the questionnaire without writing anything on it except the requested response letters and check-marks. Place the questionnaire in the pre-addressed envelope and seal it. Do not write anything whatever on the envelope. Drop the sealed questionnaire into campus mail anywhere on campus (Baker Hall post office, Donner Hall campus mail slot, main desk of Morewood Gardens, or campus mail basket in any departmental office).
2. Please check and complete the statement at the bottom of the card, and drop this card also into the campus mail. This will make it possible for us to know that you have returned the questionnaire, without affecting the anonymity of the questionnaire itself. This will facilitate any necessary follow-up to obtain the needed high rate of responses.
3. Please do this *immediately,* so that we can complete the survey before the end of the school year.
4. If you wish to write any additional comments or explanations that you think would be helpful in understanding the situation on campus, such comments would be welcome. If you typewrite such notes and do not put your name on them it will assist us in protecting the anonymity of anything that you communicate to us.
5. If campus mail is inconvenient, please use U.S. mail, but complete the address on the return envelope and on this Directions Card first.

THANK YOU!

I mailed my questionnaire to Dr. Goldstein.

Name (please print): ....

CONFIDENTIAL

PLEASE DO *NOT* PUT YOUR NAME ANYWHERE ON THIS QUESTIONNAIRE

Student Survey

1. Sex: ☐ male ☐ female

2. Age:______

3. Year in school:
   ☐ Freshman
   ☐ Sophomore
   ☐ Junior
   ☐ Senior
   ☐ 1st yr. graduate student
   ☐ 2nd yr. and later grad. student

4. Marital status: ☐ single ☐ married ☐ divorced or separated

5. Major study area:

   Graduate
   ☐ GSIA and Psych
   ☐ E and S
   ☐ Humanities
   ☐ Fine Arts

   Undergraduate
   ☐ Painting and Design, Graphics, Arch.
   ☐ Music, Drama
   ☐ Industrial Administration
   ☐ Engineering: Civil, Metallurgical
   ☐ Engineering: Mech., Elect., Chem.
   ☐ Chemistry, Math, Physics
   ☐ Business and Soc. Studies
   ☐ Humanities

6. Cumulative grade point average:
   NOTE: Only sophomores, juniors, and seniors should answer this question.
   ☐ below 1.99 ☐ 2.00-2.49 ☐ 2.50-2.99 ☐ 3.00-4.00

7. Housing during academic year:
   ☐ home ☐ dormitory ☐ fraternity ☐ rented room or apt.

8. Religion in which you were reared:
   ☐ Protestant ☐ Catholic ☐ Jewish ☐ Other ☐ None

9. Present religious preference:
   ☐ Protestant ☐ Catholic ☐ Jewish ☐ Other ☐ None

10. Present attendance at religious services:
    ☐ regular ☐ infrequent ☐ not at all

11. What is the highest level of formal education obtained by your parents? (mark one in each column)

father	mother	
☐	☐	grammar school or less
☐	☐	some high school
☐	☐	high school graduate
☐	☐	some college
☐	☐	college degree
☐	☐	post graduate degree

12. Family's (parents') approximate annual income:

☐ under $5,000
☐ $5,000 to $10,000
☐ $10,000 to $15,000
☐ $15,000 to $25,000
☐ over $25,000

13. Type of community where you were raised:

☐ farm or rural
☐ small town (under 10,000)
☐ average-sized town (10,000-99,999)
☐ suburb of a city
☐ city (100,000-500,000)
☐ large city (above 500,000)

14. Extent of participation in:

	none	seldom	occasional (twice wk.)	frequent (3 or more/wk.)
on-campus extracurricular activities	☐	☐	☐	☐
off-campus extracurricular activities	☐	☐	☐	☐

15. Are you affiliated with a social fraternity or sorority?

☐ Yes ☐ No

16. Please circle *one* number or check one of the boxes below to describe your political position.

1	2	3	4	5	6	7
extremely liberal			middle of the road			extremely conservative

☐ My position cannot be represented on the above scale.

☐ I am not particularly interested in politics.

Tear off instruction sheet (last page) before filling out this page.								negative influence						
	1. no. times used	2. when started	3. last time used	4. future use	5. who introduced	6. setting	7. with whom used	8. primary	secondary	9. order of use	10. % close friends using	11. % friends disapproving	12. Reasons for use	13. Addictive?
Amphetamine (Benzedrine, Dexedrine, Methedrine, etc.)														
Barbiturates (Nembutal, Seconal, etc.)														
Beer						■	■						■	■
Cocaine														
(STP)														
Hard liquor						■	■							
Heroin														
LSD														
Marijuana or Hashish														
Mescaline or Peyote														
Speed (Injected)														
Morphine														
No-Doze						■	■						■	■
Opium														
Psilocybin														
Tobacco						■	■						■	■
Tranquilizers (Miltown, Thorazine, Librium, etc.)														

Opinion Questions

1. Please check the appropriate answers below which best describe your opinion of the relationship between the use of marijuana among students and their use of LSD and heroin.

   a. Use of marijuana may create a physiological or bodily need for
   LSD__________ Heroin__________
   Neither__________ Don't know__________

   b. There may be social influence on marijuana users to use
   LSD__________ Heroin__________
   Neither__________ Don't know__________

   c. Use of marijuana may alter a person's values so that he himself decides to use
   LSD__________ Heroin__________
   Neither__________ Don't know__________

2. Does the regular use of marijuana increase the likelihood of criminal activity (other than the fact that marijuana is itself illegal)?
   ☐ Yes ☐ No ☐ Don't know

3. The penalty in Pennsylvania for possession of marijuana is 2 to 5 years in jail and a fine not to exceed $2,000 for the first offense. Do you think this penalty is:
   ☐ Too lenient ☐ About right ☐ Too severe

4. What percent of all students at CMU do you think have used marijuana at least once?

   __________%

Personal Experience with the Substances:

Please select one of the statements below and put its letter on the line by each substance that you have ever used.

a. It has been very helpful and beneficial to me, with no serious harmful effects.
b. It has been helpful and beneficial to me, but there have been harmful effects also.
c. I have had no particular effect from it—either beneficial or harmful.
d. I have had mostly a harmful, or unpleasant experience with this drug, but it did not seem serious to me.
e. I have had a very disturbing, very upsetting, or seriously harmful experience with this drug.

______Amphetamine
______Barbiturates
______Beer
______Cocaine
______DMT (STP)
______Hard liquor
______Heroin
______LSD
______Marijuana or Hashish
______Mescaline or Peyote
______Speed (Injected)
______Morphine
______No-Doze
______Opium
______Psilocybin
______Tobacco
______Tranquilizers

INSTRUCTIONS FOR PAGE 3

Fill in each column on page 3 with the appropriate letter or number choices from the questions below. All usage refers to that *not* on medical advice. *PLEASE PRINT.*

column 1. Number of times used during the period of my school, college, or graduate years without prior medical recommendation:

- a. never
- b. once
- c. 2-10 times
- d. 10-50 times
- e. more than 50 times

column 2. Educational level at which I started use:

- a. grade school
- b. high school
- c. after high school but not enrolled in college
- d. college 1st yr.
- e. college 2nd yr.
- f. college 3rd yr.
- g. college 4th yr.
- h. after college but not enrolled in grad. school
- i. graduate school

column 3. The last time I used the substance was:

- a. within the last week
- b. within the last month
- c. 1-2 months ago
- d. 3-5 months ago
- e. 6 months - year ago
- f. more than a year ago

column 4. Assuming the substance was readily available, the possibility of my using it in the next year is: (choose one for each substance)

- a. definitely would like to use it
- b. might like to use it
- c. don't know
- d. probably would not use it
- e. definitely would not use it

column 5. Person who primarily suggested I use the substance the first time:

- a. roommate
- b. spouse
- c. close friend (same sex)
- d. close friend (opposite sex)
- e. acquaintance
- f. girl/boy friend
- g. parent
- h. brother or sister
- i. physician or clinic
- j. it was my own idea
- k. other

column 6. In what setting are (were) you most likely to use the substance?

- a. parents' home
- b. own rented apt. or room
- c. dormitory room
- d. public place
- e. apt. or room of close friend
- f. apt. or room of acquaintance
- g. automobile
- h. outdoors
- i. other

column 7. The majority of the time I use the substance:

- a. alone
- b. with one or two others (same sex)
- c. with one or two others (mixed company)
- d. with a large group (same sex)
- e. with a large group (mixed company)
- f. other

column 8. If you have stopped or decreased usage or if you have never used any of these substances please write in a letter from the list below to indicate the primary reason and the secondary reason (if any) for this:

a. reports of harmful psychological effects.
b. reports of harmful medical effects.
c. observation of effects in others.
d. urging (or potential disapproval) from parents.
e. urging (or potential disapproval) from friends or acquaintances.
f. unsatisfactory personal experience with the substance.
g. illegality; arrests and increased law enforcement.
h. difficulty in obtaining the substance.
i. no desire to experience (to continue experiencing) its effects.
j. dislike of injections.
k. have not heard of this substance.

column 9. Considering all the substances listed on page 3, number those which you have used in the order of your first experience with each.

column 10. What proportion of your friends have used the substance at least once?

a. none
b. very few
c. a few
d. a sizeable minority
e. about half
f. most
g. all

column 11. What proportion of your friends disapprove of using this substance?

a. none
b. very few
c. a few
d. a sizeable minority
e. about half
f. most
g. all

column 12. In column 12 on page 3, indicate (by letter) for each substance that you've taken your personal reason(s) for taking it.

a. Reduce general anxiety
b. Explore inner self
c. For religious or mystical feeling
d. Satisfy a strong craving
e. Relieve boredom
f. Feel less depressed or sad
g. Relieve tension or nervousness
h. Make a good mood last longer or make a fine feeling better
i. Relieve anger or irritability
j. Be more friendly, enhance sociability
k. Be more loving
l. Feel stronger or healthier
m. Feel less dull or sluggish
n. Improve sexual appetite,sensitivity, or capacities
o. Reduce sexual desires or activities
p. Either increase or decrease appetite for food
q. Kill self
r. Improve ability to learn or remember
s. Improve performance in something physical (athletics, work)
t. Prepare for stress
u. Shut things out of mind
v. Be like others I admire
w. Facilitate creative abilities
x. Go along with what others are doing
y. Get high, feel good

column 13. Indicate for each substance whether it is physiologically addictive, that is whether it produces very unpleasant physical symptoms when sustained use is stopped. Use the appropriate letter:

a. yes
b. no
c. don't know

APPENDIX B

Spring Freshman Follow-up Survey Materials[1]

Page

Letter Accompanying Questionnaire 100

Follow-up Letter to Nonrespondents 101

Spring Questionnaire 103

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[1] Note: A Directions and Reply Card essentially similar to the one used in the fall survey (Appendix A) was also used in this survey.

Carnegie-Mellon University

Department of Psychology
Schenley Park
Pittsburgh, Pennsylvania 15213
[412] 621-2600

To all CMU Freshmen:

At the beginning of the school year most of you completed a questionnaire concerning drug use. Subsequently, this questionnaire was sent to all the other students on campus and more than 70% were completed and returned to us. This was an excellent response for a mail survey of this kind. A summary of the results will be available for you next fall.

Of course we were able to get a much higher response rate from freshmen (over 95%), since you were tested as a group. Since we were able to get such complete information, we would like to find out what has happened since last September. Obviously, your first year in college is particularly significant. Many things are done differently than they were in high school and others happen for the first time. Some of you may have encountered the drug scene and others may have missed it completely. Finding out about all of you will help us learn something about adjusting to college life as well as about drugs.

The questionnaire (a shortened version of the one we used last fall) and the method of returning it have been carefully designed so that replies are anonymous while still making it possible to send reminders to those who do not reply (as explained on the "Directions" Card). We have asked you to write the code number you were assigned last September (if you retained it) on the questionnaire. As you may recall, that number was assigned by chance—determined by the seat which you selected—and could not be used to identify you.

We have a strong desire to be and to remain unable to identify specific individuals so that we are not placed in possible legal jeopardy and have tried hard to make it as difficult as possible for anyone to do this. All data will be transferred to a computerized system and the questionnaires and directions cards will be burned. Professional research ethics will be strictly observed throughout the study. Our purposes in conducting the research are simply to better understand usage and to share our understanding with others. We are interested in identifying patterns, trends, and relationships. We are *not* interested in identifying individuals and this concern has led us to sacrifice some important questions.

We are asking your cooperation in an attempt to get good information of a type that is presently rare everywhere. A complete or very nearly complete response from all freshmen is necessary because the data might be biased in serious—and worse—unknown ways by only a partial response or by incomplete questionnaires. In this area the scarcity of good information makes your cooperation even more important than it usually is in survey research.

This study is sponsored by a grant awarded to us by the National Institute of Mental Health and by funds from the Falk Foundation. The proposal for the research was initiated entirely by us, and not by the university administration or any other authority, although the study does have administrative approval.

If you feel that the questionnaire does not allow you to express your views adequately (and no questionnaire really does since it must be limited to certain preselected choices), we invite you to communicate with us more fully. A note, preferably typewritten and enclosed with your questionnaire, is suggested, but it may be sent separately if you desire. If you want to telephone one of us no attempt will be made to determine your identity and we would be grateful for the chance to hear your views. If you have questions which you would like answered before you respond to the questionnaire, any of us will try to provide answers.

If you specifically wish not to participate in this survey for any reason, please enclose your blank questionnaire in the return envelope and proceed as indicated on the "Directions" card. We will then not bother you with further attempts to get the questionnaire returned, however we hope that all students will be willing to respond so that we get meaningful and reliable information.

Please follow the directions printed on the enclosed "Directions" card, and please return the questionnaire immediately since the analysis of the data cannot begin until all of the forms are returned.

Once again, a complete return is needed to get results that are meaningful. Your prompt return of the questionnaire will save you the bother and save us the expense and effort of follow-up letters and calls. We hope that you agree that this is an important and worthwhile project—for all of us.

Joel Goldstein
JOEL GOLDSTEIN, PH.D.
Assistant Professor of Psychology

Walter H. Abel
WALTER ABEL, PH.D.
Counselor and Research Psychologist

James Korn
JAMES KORN, PH.D.
Assistant Professor of Psychology

Robert M. Morgan
ROBERT MORGAN, ED.D.
Director of Counseling and Associate Professor of Psychology

Carnegie-Mellon University
Department of Psychology
Schenley Park
Pittsburgh, Pennsylvania 15213
[412] 621-2600

To Certain CMU Freshmen:

According to our records you are among the freshmen who have not returned a "Directions" card so we do not know if you have returned your drug survey questionnaire.

LACK OF TIME?

If you have been neglecting your reply for lack of time we ask that you consider yourself nudged and return the materials as soon as possible. We realize that students are under a lot of pressure during final exams, but we feel that the topic of our questionnaire is important enough to ask you to take the 15-20 min. necessary to complete it.

NOT A USER?

If you have not responded because you have had little or no experience with most or all of the substances being asked about, remember we need responses from ALL CMU students, users and nonusers, in order to carry out a meaningful survey.

CONCERNED ABOUT BEING IDENTIFIED?

We have no reason to nor do we even want to be able to identify individuals. None of the materials are marked in any way and they may be traded about at will. The survey materials are not sufficient basis or evidence for arrest or conviction. The data will be stored in a coded computerized system and the questionnaires and directions cards will be burned as soon as possible. IF you feel that your particular set of background characteristics might identify you (and the categories have been kept very general to reduce this problem) omit the most highly identifying item(s) rather than not responding at all.

Some people are under the impression that finding out how much usage there is, is our primary aim. This is not so. If it were, we would have settled for the very brief questionnaires used at most other colleges which have had surveys. We are seeking to create profiles of characteristics of users of various substances, of patterns of use, and of attitudes towards and experiences with the various substances. Incredible as it may seem, data on these basic matters is almost nonexistent and we believe our survey to be the most extensive wide-scale investigation yet to be conducted.

In checking with other investigators, we find that all report that their surveys have had no effect on the amount or nature of the law enforcement situation at their campus. We believe that the same will hold true here and we are taking several steps to insure this. As we have said, no data will be released before the mid-summer or next fall. At that time there will be made available a report to students, but it will not deal with how many users there are. It will deal with characteristics of various types of use and nonuse. The final report will be in technical form in a scientific journal or monograph and will not be ready for at least two years from now at the earliest.

We have already received questionnaires from 50% of the freshmen (and many of them contained notes for which we are grateful). In spot-checking it becomes clear that we are obtaining a heavy response from both users and nonusers. Students who resist returning a questionnaire cannot prevent the survey from being completed; there is simply too much useful data on hand for that. They, and students who deliberately "fake" their responses, contribute to the considerable amount of public misinformation which already exists. It is a matter of having your experience and opinions counted or of letting yourself by represented by others who may be very different from you.

If you desire additional materials for any reason, you may request them by calling any of us or by leaving a message with the secretary of the Counseling Center (extension 280). Notes concerning any aspect of the study may be sent to any of us at the Psychology Department through the campus mail, either separate from or enclosed with a questionnaire. If any group of students would like to meet with an investigator, we will do our best to arrange a meeting.

Sincerely,

Joel Goldstein, extension 240
James Korn, extension 278
Robert Morgan, extensions 280, 286
Walter Abel, extensions 280, 286

CONFIDENTIAL

PLEASE DO *NOT* PUT YOUR NAME ANYWHERE ON THIS QUESTIONNAIRE

If you have the code number you were given last September, write the number here. . . . .

1. Sex: Male . . . . Female . . . .

2. Major study area:

☐ Painting, Sculpture, Design, Graphics, Architecture
☐ Music, Drama
☐ Industrial Administration
☐ Engineering: Civil, Metallurgy
☐ Engineering: Mechanical, Electrical, Chemical
☐ Chemistry, Mathematics, Physics
☐ Business and Social Studies
☐ Humanities

3. Grade point average last semester:

☐ below 1.99 ☐ 2.00-2.49 ☐ 2.50-2.99 ☐ 3.00-4.00

4. Housing during academic year:

☐ home ☐ dormitory ☐ fraternity ☐ rented room or apartment

5. Religion in which you were reared:

☐ Protestant ☐ Catholic ☐ Jewish ☐ Other ☐ None

6. Present religious preference:

☐ Protestant ☐ Catholic ☐ Jewish ☐ Other ☐ None

7. Present attendance at religious services:

☐ regular ☐ infrequent ☐ not at all

8. What is the highest level of formal education obtained by your parents?

(mark one in each column)

father	mother	
☐	☐	grammar school or less
☐	☐	some high school
☐	☐	high school graduate
☐	☐	some college
☐	☐	college degree
☐	☐	post graduate degree

9. Family's (parents') approximate annual income:

☐ under $5,000
☐ $5,000 to $10,000
☐ $10,000 to $15,000
☐ $15,000 to $25,000
☐ over $25,000

10. Type of community where you were raised:

☐ farm or rural
☐ small town (under 10,000)
☐ average-sized town (10,000-99,999)
☐ suburb of a city
☐ city (100,000-500,000)
☐ large city (above 500,000)

11. Extent of participation in:

	none	seldom	occasional (twice week)	frequent (3 or more per week)
on-campus extracurricular activities	☐	☐	☐	☐
off-campus extracurricular activities	☐	☐	☐	☐

12. Are you affiliated with a social fraternity or sorority? ☐ Yes ☐ No

13. Please circle ONE number *or* check one of the boxes below to describe your political position.

1	2	3	4	5	6	7
extremely liberal			middle of the road			extremely conservative

☐ My position cannot be represented on the above scale.

☐ I am not particularly interested in politics.

Tear off instruction sheet (next page) before filling out the rest of this page.

	Amphetamines (Benzedrine, Methedrine, etc.)	Beer	Hard Liquor	Heroin or Opium	LSD	Marihuana or Hashish	Tobacco
1-a. No. times used							
1-b. No. times used since September 1, 1968							
2. when started							
3. last time used							
4. future use							
5. who introduced							
6. setting first time		▨	▨				▨
7. with whom first time		▨	▨				▨
8. reasons for starting: a. primary							
b. secondary							
9. order of use							
10. % close friends using							
11. % friends disapproving							
12. negative influence: a. primary							
b. secondary							
13. personal experience		▨					▨

INSTRUCTIONS FOR PAGE 2

Fill in each row on page 2 with the appropriate letter or number choices from the questions below. All usage refers to that *not* on medical advice. PLEASE PRINT

Row 1a. Number of times used during the period of my school or college years without prior medical recommendation:

a. never
b. once
c. 2-10 times
d. 10-50 times
e. more than 50 times

Row 1b. Number of times used since Sept. 1, 1968 without prior medical recommendation.

a. never
b. once
c. 2-10 times
d. 10-50 times
e. more than 50 times

Row 2. Educational level at which I started use (if started during summer, select the following school year):

a. grade school
b. high school 1st yr.
c. high school 2nd yr.
d. high school 3rd yr.
e. high school last yr.
f. after high school but not enrolled in college
g. college 1st semester
h. college 2nd semester

Row 3. The last time I used the substance was:

a. within the last week
b. within the last month
c. 1-2 months ago
d. 3-5 months ago
e. 6 months-year ago
f. more than a year ago

Row 4. Assuming the substance was readily available, the possibility of my using it in the next year is: (choose one answer for each substance)

a. definitely would like to use it
b. might like to use it
c. don't know
d. probably would not use it
e. definitely would not use it

Row 5. Person who primarily suggested I use the substance the first time:

a. roommate
b. spouse
c. close friend (same sex)
d. close friend (opposite sex)
e. acquaintance
f. girl/boy friend
g. parent
h. brother or sister
i. physician or clinic
j. it was my own idea
k. other

Row 6. Where were you when you used the substance for the first time?

a. parents' home
b. own rented apt. or room
c. dormitory room
d. public place (indoors)
e. apt. or room of close friend
f. apt. or room of acquaintance
g. automobile
h. outdoors
i. other

Row 7. Who were you with when you used the substance for the first time?

a. alone
b. with one or two others (same sex)
c. with one or two others (mixed company)
d. with a large group (same sex)
e. with a large group (mixed company)
f. other

Row 8. In Row 8 indicate (by letter) for each substance that you have taken, your primary and secondary reason for using it the *first* time.

a. curiosity
b. for enjoyment or pleasure; to get high, feel good
c. be sociable and friendly; go along with others
d. reduce general anxiety, tension, nervousness or stress
e. academic pressure
f. increase or decrease appetite for food
g. explore inner self
h. for religious or mystical feeling
i. satisfy a strong craving
j. relieve boredom
k. feel less depressed or sad
l. relieve anger or irritability
m. improve ability to learn or remember
n. improve performance in something physical (athletics, work)
o. facilitate creative ability

Row 9. Considering all the substances on page 3, number those which you have used in the order of your first experience with each.

Row 10. What proportion of your friends have used the substance at least once?

a. none
b. very few
c. a few
d. a sizeable minority
e. about half
f. most
g. all

Row 11. What proportion of your friends disapprove of using this substance?

a. none
b. very few
c. a few
d. a sizeable minority
e. about half
f. most
g. all

Row 12. If you have stopped or decreased usage *or if you have never used* any of these substances please write in a letter from the list below to indicate the primary reason and the secondary reason (if any) for this:

a. reports of harmful psychological effects
b. reports of harmful medical effects
c. observation of effects in others
d. urging (or potential disapproval) from parents
e. urging (or potential disapproval) from friends or acquaintances
f. unsatisfactory personal experience with the substance
g. illegality; arrests and increased law enforcement
h. difficulty in obtaining the substance
i. no desire to experience (or to continue experiencing) its effects
j. dislike of injections
k. have not heard of this substance

Row 13. Select one of the statements below for each substance you have ever used:

a. It has been very helpful, and beneficial to me, with no serious harmful effects.
b. It has been helpful, and beneficial to me, but there have been harmful effects also.
c. I have had no particular effect from it—either beneficial or harmful.
d. I have had mostly a harmful or unpleasant experience with this substance, but it did not seem serious to me.
e. I have had a very disturbing, very upsetting, or seriously harmful experience with this substance.

The following question is optional. All forms containing answers to it will be retyped by us and this page will be burned as soon as possible.

a. Please discuss why and/or how you started to use the substances that you have used. Discuss as many relevant factors as you are aware of.

b. Please discuss the positive and negative aspects of the experiences that you have had with each of the substances you have used.

APPENDIX C

Determining the Statistical Significance of a Difference between Two Percentages

Appendix C

Determining the Statistical Significance of a Difference between Two Percentages

When the question arises as to whether or not an observed difference between two percentages represents a significant difference the following table (Table 2) can be used. N_1 and N_2 refer to the size of two subsamples which are being compared. The figures in the table represent the size of a difference in percentages which would be necessary for the difference to have occurred no more than five times in one hundred by chance alone. The values are calculated for proportions near 50% and therefore are conservative estimates for other percentages. The table should not be used where either value in a comparison is much lower than 20% or greater than 80%.

Table 21

Magnitude of Difference between Two Percentages Required for the 5% Level of Confidence for Subsamples of Various Sizes

	N_1						
N_2	2000	800	600	400	200	100	50
2000	1						
800	4	6					
600	5	7	7				
400	6	7	8	8			
200	8	10	10	10	11		
100	10	10	11	11	12	14	
50	14	14	14	14	16	17	20

Examples: Are there significantly higher proportions of women who were Heavy Down users than (a) in the general population or than b) who use alcohol?

	Total	Females	% Females
All upperclassmen	2197	615	28
Heavy Down users	98	44	45
Drinkers	424	89	21

Entering the table at N_1 = 2000 (the figure closest to 2197, the total number of upperclassmen) and at N_2 = 100 (the figure closest to 98, the number in the sample of Heavy Down users), we find that a difference of 10 or more percentage points are needed for a significant difference to exist. Since the difference between the 28% females in the upperclass population and the 45% females in the Heavy Down users is 17, we conclude that women are over-represented among Heavy Down drug users.

By the same process we enter the table at 100 and at 400 to compare Heavy Down users to Drinkers and obtain the figure of 11 or more percentage points necessary for significance. Since the proportion of females in the Heavy Down group is 24% higher than for Drinkers, we can again conclude that the difference in percentages is significant.